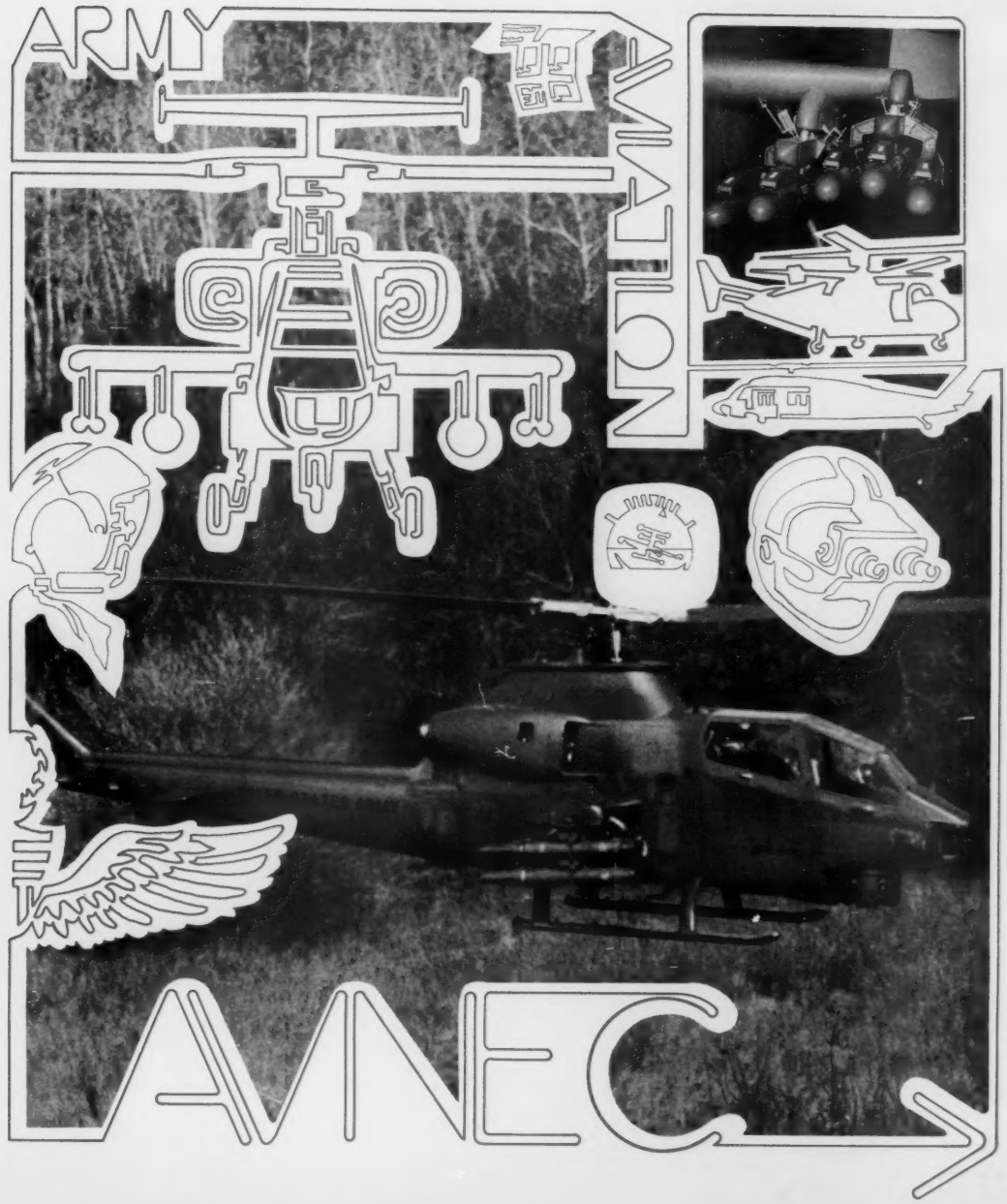
UNITED STATES ARMY

AVIATION DIGEST

JULY 1978

NEW: "Reporting Final," page 38



UNITED STATES ARMY
AVIATION DIGEST
JULY 1978
VOLUME 24
NUMBER 7

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Richard K. Tierney
Editor

ABOUT THE COVER

This month the *Digest* features AVNEC Part II—How To Fight Offense. See page 2.
Cover art by Fred Martin

The mission of the ***U.S. Army Aviation Digest*** is to provide information of an operational, functional nature concerning safety and aircraft accident prevention, training, maintenance, operations, research and development, aviation medicine and other related data.

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Articles, photos and items of interest on Army aviation are invited. Direct communication is authorized to: Editor, ***U.S. Army Aviation Digest,*** Fort Rucker, AL 36362.

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National Guard and Army Reserve units under pinpoint distribution also should submit DA Form 12-3. Other National Guard units should submit requests through their state adjutant general.

Those not eligible for official distribution or who desire personal copies of the ***Digest*** can order the magazine from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Annual subscription rates are $17.00 domestic and $21.25 overseas.

You, The News Media And Aircraft Accidents

Active duty, National Guard and Reserve component personnel have certain responsibilities when dealing with the news media at sites of aircraft accidents or incidents. The following article was prepared by the Office of Public Affairs at the U.S. Army Aviation Center, Ft. Rucker, AL to outline these matters.

RELEASE AUTHORITY

The public affairs officer (PAO) is the *sole* release authority for information related to aircraft accidents. All queries from news media representatives concerning details of accidents must be referred to the PAO who is the spokesperson for the command concerning accidents that occur either on Government property or in the civilian domain. Personnel at the accident site will refer all media queries to PAO.

ACCIDENTS OCCURRING ON FEDERAL PROPERTY

Upon arrival at the scene, the PAO (or PAO representative) assumes full responsibility for news media activities. When an accident or incident occurs in areas of Government jurisdiction (or on Federal property) and a PAO representative is not present to assume responsibility, personnel at the scene (crash rescue, medical, security guards, etc.) will within the bounds of legal safety requirements, *make no attempt to prevent news media representatives from photographing the scene of the accident/ incident.* **However,** *should classified material be present, all media representatives will be restricted from the area until such time as classified materials have been secured.* **When classified materials are not present, personnel should assist news media representatives in securing photographs they desire.**

ACCIDENTS OCCURRING IN THE CIVILIAN DOMAIN

When accidents or incidents occur in the civilian domain, Army representatives, civilian or military, cannot assume jurisdiction. If the PAO representative is not present, personnel at the scene (crash rescue, medical, security guards, etc.) representing the Army's interests will within the bounds of legal safety requirements not attempt to prevent news media representatives from photographing the scene of the accident/incident. *Again, if classified material is present, news media representatives should be informed that photographing classified material is in violation of Federal Statutes (Title 18, U.S. Code 795, 797).* **When classified material is not present, personnel should assist news media representatives in securing photographs they desire.**

NEWS MEDIA QUERIES

Personnel must refer all requests for information (number of personnel aboard, medical condition, cause of accident, etc.) to the PAO who will coordinate all queries with appropriate staff agencies (Adjutant General Casualty, Safety, Hospital, etc.) before making any release to news media representatives.

Recommended for Bulletin Board

AVNEC REPORT

Major General James C. Smith
Commander U.S. Army Aviation Center
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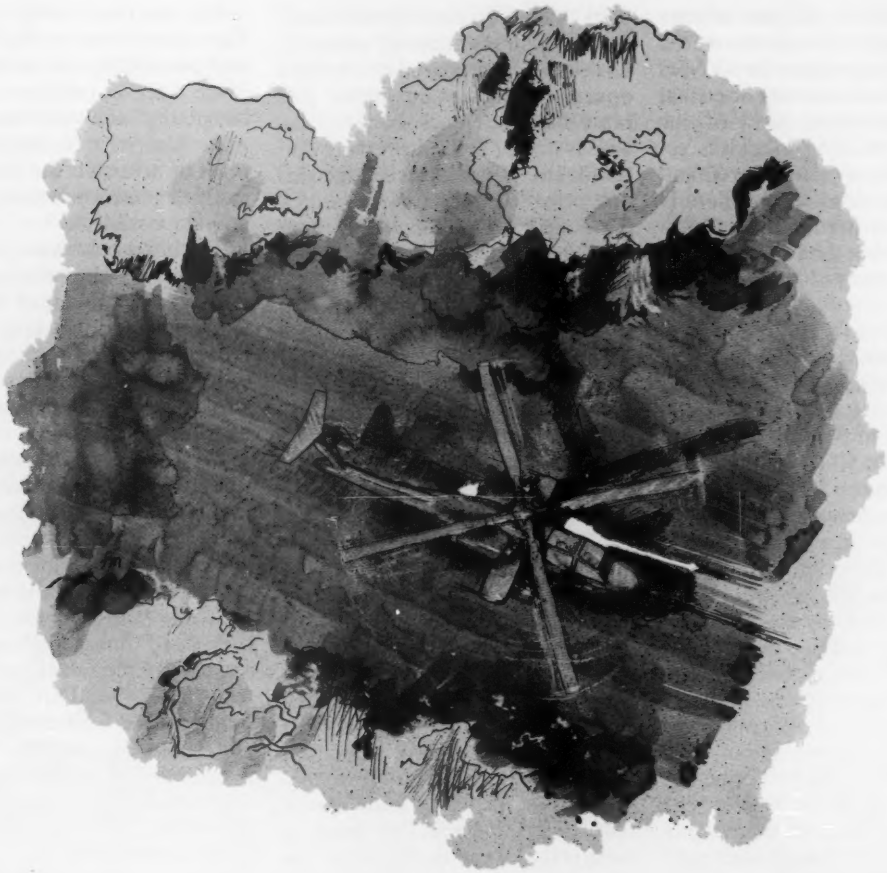
RECENT ISSUES of the *Aviation Digest* have familiarized most of its readers with the Army Aviation Employment Conference (AVNEC) hosted by the U.S. Army Aviation Center (USAAVNC) at Ft. Rucker, AL during the period 28 to 31 March 1978. For the record, 29 general officers and civilian equivalents together with more than 20 colonels attended the conference to discuss Army aviation employment doctrine and to prioritize aviation systems and subsystems under development or undergoing major product improvement.

Employment doctrine recommendations resulting from the conference have been forwarded to the Combined Arms Center (CAC) and other appropriate agencies for action.

It should be pointed out that although this was an "aviation employment" conference, in no way should it be deduced that conference attendees were all aviators. Less than half of the attendees were aviators. Nonaviator general officers represented Continental United States (CONUS) divisions, U.S. Army Europe (USAREUR) tactical commands and Department of the Army, as well as others represented major Training and Doctrine Command (TRADOC) Centers/Schools. USAAVNC, the host of the conference, wanted to ensure that issues, especially doctrinal issues, discussed during AVNEC were not done from only the parochial standpoint of an aviator commander or staff officer. We wanted the doctrinal recommendations to indeed represent true combined arms employment views.

Last month the *Digest* covered "AVNEC Part I, Standardization and Interoperability" by LTC Wayne B. Lunsetter and MAJ Ted D. Cordrey. This month, MAJ J. F. Fields addresses "How To Fight—Offense" another of the four major areas discussed during AVNEC. Next month the *Digest* will carry "How To Fight—Defense."

AVNEC PART II



Major J. F. Fields
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Fort Rucker, AL

How To Fight: Offense

DEPARTMENT of the Army "How To Fight" manuals provided the starting point for the Offense issues which were discussed at the AVNEC Conference last March at Ft. Rucker, AL. The conferees took such things into consideration as the threat forces that most likely would oppose U.S. Forces on future battlefields and current and developing aviation hardware to defeat these forces. They then looked at existing doctrine from the standpoint of adequacy, completeness, etc.

With so much of our current thinking concerning the conduct of warfare on the next battlefield oriented toward defense, one might wonder why time and effort at a major employment conference such as AVNEC should be devoted to the offense. Ironically, this type of reasoning is precisely why the deci-

How To Fight: Offense

sion was made to include offense as a major topic. It was discovered early in issue preparation for AVNEC that most of our existing doctrinal literature as well as most of our major field training exercises recently have been oriented predominately on the defense. Nowhere is this defensive predominance any more noticeable than in combined arms employment of Army aviation units.

Why is this so? The most common answer (and probably the basis for largely orienting Army aviation employment in a defensive vein) is found in part in the following quotation from FM 90-1, "Employment of Army Aviation Units in a High Threat Environment" (p 3-16): "It must be kept foremost in mind that attack helicopter units are markedly more effective on a battlefield characterized by enemy movement. This is because of the helicopter's significant mobility advantage over armored vehicles, and the requirement to use maximum standoff engagement techniques which maximize kills and enhance survivability. If attack helicopters are used to attack well dug-in and concealed enemy forces who possess substantial size and capability, effectiveness is decreased and attack helicopters loss rates will be higher."

Although the terms *defense* and *offense* never are used in the preceding quote, I believe it is implied that threat forces are conducting offensive operations and U.S. Forces (in this instance Army aviation units) are defending.

Few would disagree with the above quote from FM 90-1. This view is often quoted and should not be shocking to anyone reading it for the first time. One could easily expand it to be nearly all encompassing by replacing in the quote the phrase "attack helicopter units" with "combined arms forces." In almost all instances an attacking force must be prepared in offensive operations to sustain higher loss rates than in defensive operations. This is one of the reasons why current doctrinal literature recommends that prior to conducting an attack the attacking force should have concentrated combat power of about 6:1 superiority (FM 100-5, p 3-5). With this background "How to Fight—Offense" became one of the four major areas of the Army Aviation Employment Conference. There was never an attempt during the planning phase of AVNEC nor the conference itself to degrade or take anything away from our preoccupation with the defense. Nor is this article meant to detract from the importance of the defense. It very well may be the type of operation which will be the predominant U.S. strategy on the next battlefield—it can not though totally dominate our doctrinal literature, our materiel acquisitions, etc. In short, if we are to be the victor in the first battle in the next war (probably against a sophisticated and numerically superior force), we must at some stage of the battle go on the offensive.

The first offensive issue addressed means of employing aviation units in the exploitation and pursuit of an enemy force. Most combat aviation units, e.g., air cavalry troops/squadrons, attack helicopter companies/battalions, combat aviation battalions, and medium helicopter companies, were addressed regarding their roles in the exploitation and pursuit in both the current timeframe (1978) and future timeframe (1985).

A study of the exploitation and pursuit reveals certain characteristics and requirements of the missions. The force executing these operations must be able to *drive swiftly* to reach deep objectives. The commander of the exploiting and pursuing forces holds out only those reserves necessary to ensure "flexibility" and continued momentum. Also, the commander's aim must be to reach the assigned objective in maximum strength as *rapidly* as possible.

The offense workshop concurred unanimously that the *speed, mobility* and *firepower* of Army aviation units, especially attack helicopter and air cavalry units, make them superb for inclusion in a combined arms force conducting exploitation and pursuit missions.

The workshop recommended that whenever possible Army aviation units should be fully integrated into the combined arms force commander's scheme of maneuver for the conduct of *exploitation and pursuit missions.* It further recommended that the Combined Arms Center and the Training and Doctrine Command (CAC/TRADOC) develop and then test and field evaluate tactics and doctrinal concepts for use of Army aviation units in the conduct of the exploitation and pursuit missions with all elements of the combined arms team.

Other recommendations stressed the importance of ensuring that responsible agencies and Army schools fully integrate into employment doctrine the results of the ARCSA III (Aviation Requirements for the Combat Structure of the Army III) Study (see July 1977 issue of ***Aviation Digest).***

Finally, the workshop recommended that during the planning for exploitation and pursuit missions three major things should be considered:

- Decide the tasks aviation units are to perform to facilitate integration into fire/maneuver and administrative/logistical plans of the combined arms force.
- Assign missions to each avia-

tion unit to accomplish these tasks.

- Provide the means of command and control to accomplish the first two considerations.

The second issue focused on the contributions of Army aviation as a member of the combined arms team in joint actions with other members or as an autonomous aviation team engaging in operations across the forward edge of the battle area (FEBA). As with the previous issue, nearly all types of aviation units were included in the discussion.

The overall assessment by the workshop addressing this issue was that across the FEBA operations are both necessary and feasible in both the 1978 and 1985 timeframes. Such operations definitely are high risk and only should be attempted when a distinct tactical advantage will accrue.

Other significant conclusions made by the workshop were that this type of operation will require real time intelligence and combat information and will most likely subject the attacking force to air-to-air engagement by enemy helicopters and other aircraft.

The workshop also concluded that with the increased capabilities of the UH-60 Black Hawk, AH-64 and ASH (advanced scout helicopter) the battlefield commander in 1985 can be expected to be more aggressive in employing aviation units across the FEBA; additionally, it was felt that the capabilities of air cavalry and attack helicopter units will be reduced significantly if the ASH program is not continued.

Although AVNEC was billed primarily as an employment conference, there were many recommendations made concerning aircraft systems and subsystems. As I'm sure most readers can imagine, the ASH was one of the dominant subjects discussed during the conference.

It was the recommendation of the How to Fight—Offense Workshop that the ASH program be continued with a concerted effort for timely procurement of an ASH that will maximize the effectiveness of

the AH-64 even if associated tradeoffs must be made in other agencies.

The workshop also recommended that a helicopter armament system be developed to counter the air-to-air threat. As with the exploitation and pursuit issue, *it was recommended* by the Offense Workshop that TRADOC initiate concept development and field test and evaluate offensive tactics for Army aviation units employed in across the FEBA operations.

The third issue focused on the capability of medium helicopters (CH-47 Chinook) and combat support helicopters (UH-1 Huey and UH-60) to conduct continuous resupply during an offensive operation, specifically the exploitation and pursuit. The primary types of helicopter units considered were the combat support aviation company (CSAC) and the medium helicopter company (MHC). Each unit was examined from the standpoint of its ability to conduct continuous operations, lift capacity and methods of employment.

No particular significance should be attached to the fact that only in the Offense Workshop was the area of helicopter supply significantly covered. A decision was made early in the planning of AVNEC that helicopter resupply, although an important aspect of both offensive and defensive operations, would be narrowed to focus on offensive operations, specifically the exploitation and pursuit mission. In most instances, helicopter resupply conclusions and recommendations made here concerning offensive operations are applicable also to defensive operations. Numerous equipment needs and deficiencies surfaced during helicopter resupply discussion resulting in numerous equipment recommendations being made during AVNEC.

The workshop recommended that TRADOC continue or initiate programs to ensure development of:

- a triple hook capability for the CH-47
- some type of device (materiel handling equipment) to move class III (fuel) and class V (ammunition) in forward area refueling and rearming points (FAARPs)
- an internal loading system for the CH-47
- a pressure refueling capability for the CH-47
- the helicopter external gondola system (HEGS).

Recommendations resulting from the Army's continuing emphasis on night operations were:

- UH-60 and CH-47 aircraft be adapted for use with night vision goggles (NVGs).
- Improved navigation and communications system incorporated into the UH-60 and CH-47 helicopters.

The fourth issue focused on the capabilities/effectiveness of Army aviation during the hours of darkness and adverse weather. As with the helicopter resupply issue, night and adverse weather operations are as important both to the defense and offense. And like the helicopter resupply issue, equipment needs tended to dominate the discussion of this issue.

It was concluded after considerable discussion during the workshop there is no known effort to equip the CH-47 or the UH-60 with night vision systems which would give both helicopters a significantly improved night and adverse weather capability. *Subsequently, it was recommended* that a system similar to that being designed into the AH-64 be considered. *It also was recommended* that a night vision system be a requirement for the CH-47 and the UH-60.

The fifth issue addressed the subject of electronic warfare (EW)/intelligence aircraft normally found in specially tailored units. There was insufficient time during the conference for a detailed discussion of this issue.

It was the consensus of the attendees that there is some doubt as to the survivability of most EW and military intelligence aircraft, especially those that require other than terrain flight altitudes for onboard systems operation.

It also was felt that there is a great deal of multiplicity among EW/military intelligence airframes. The workshop recommended that TRADOC initiate a complete review of all EW and military intelligence aircraft programs—to result in a clear establishment of priorities among the multitude of these programs.

The sixth and final issue focused on the contribution of Army aviation as a member of a combined arms team engaged in executing a hasty attack. As was the case with most employment issues covered by the How to Fight—Offense Workshop, *it was determined* that most current How to Fight manuals lack combined arms employment doctrine for Army aviation units to participate in a hasty attack maneuver. *This conclusion resulted in the recommendation* that CAC and TRADOC schools develop combined arms employment doctrine for Army aviation units and integrate this doctrine into appropriate How to Fight manuals and other training literature as well.

The Offense Workshop at AVNEC captured, in general, the offensive spirit of the U.S. Army and Army aviation in particular. There is no need for the offensive spirit of the U.S. Army to wane. In fact, it is imperative that this not be permitted to happen. The offense should be foremost in the minds of each and every member of the combined arms team. The offense must be deeply ingrained in our Army aviation doctrine.

WANTED

AVIATION MAINTENANCE PERSONNEL
To Submit
RECOMMENDED CHANGES/OPINIONS/COMMENTS/SUGGESTIONS

UNDER THE implementation phase of Enlisted Personnel Management System (EPMS), aviation maintenance personnel should start receiving their Soldier's Manuals, Commander's Manuals or Job Books soon. All Continental United States (CONUS) based aviation personnel (except military occupational specialties (MOSs) 68M and 68J) should have received their Soldier's Manuals by 1 June 1978, and all outside CONUS based aviation personnel (except MOSs 68M and 68J) about 1 July 1978. This same schedule applies to the Commander's Manuals and Job Books.

When you receive your copy of one of these manuals, take a few hours to review it and complete the questionnaire located in the back of each of these manuals. This will help us here at T-School, which is the proponent for aviation MOSs, to provide you with better products in the form of changes and second-generation manuals. When you send in these questionnaires to the preprinted address on the reverse side of the questionnaire, we evaluate your comments, suggestions, recommended changes, and opinions and post these to the master copy of the applicable manual so that when changes or a new manual is printed the changes will be incorporated. If after you have sent in your copy of the questionnaire you find other recommended changes or errors, etc., then use DA Form 2028 (Recommended Changes To Publications And Blank Forms) and direct it to:

Commandant
U.S. Army Transportation School
ATTN: ATSP-TD-ITD
Fort Eustis, VA 23604

Note: **To receive a reply or acknowledgement from the questionnaire, include your name even though there is no specified place for it on the form.**

REWARD: Better Products For You

Commanders are encouraged to tear this out and place on the bulletin board.

WHERE TO SET IT DOWN ? ANYWHERE YOU CAN.

WHILE FLYING low level, an OH-58 pilot initiated a 20-degree banking right turn. During the turn, the pilot looked out the left window and became disoriented. The force trim was off, and the cyclic was moved forward and further right, placing the aircraft in a descending right turn with a bank angle of 60 degrees to 80 degrees. Before the pilot could complete recovery, the aircraft struck several trees, breaking the chin bubble and pilot's windshield. Tree branches lodged in the broken windshield, obstructing the pilot's vision to the front and right side. As the aircraft continued through the trees, the right skid cap was lost and the right horizontal stabilizer and lower portion of the vertical fin were severed.

The pilot turned the aircraft further to the right, flew clear of the trees and approached a road at about 10 to 15 feet agl at an airspeed of

Two views of aircraft that continued flight after tree strike show extent of damage (note bent push-pull tubes and sheared horizontal stabilizer as well as lower portion of vertical fin).

10 to 15 knots. Prior to crossing the road, numerous pieces of plexiglass, one piece of the right nose structure, and several small branches fell off the aircraft. Forward flight was continued. The aircraft was climbed to approximately 100 feet agl to clear telephone lines. Immediately afterwards the aircraft was brought to a 3-foot hover, but before setting it down, the pilot realized he was over civil property and elected to climb back over the telephone wires and fly over the trees back onto the military reservation—a distance of nearly 300 meters.

In another case, the crew chief of a UH-1 smelled what he suspected was fuel vapor. He reported this to the PIC, who elected to continue flight to his destination. The fuel odor persisted until it got the full attention of the crew. About 5 minutes out from the destination airfield, the copilot became extremely nauseated and was approaching unconsciousness. The flight was continued to the destination airfield where the copilot was evacuated to the installation hospital. Had the PIC elected to make a precautionary landing when initially alerted by the crew chief, he would have found a leaking fuel line and probably would have decided to abort the mission until the problem was corrected. When questioned about his decision to continue flight to his destination, the pilot responded by saying that he did not know of an authorized landing area along his route except at the destination airfield.

Why are some pilots reluctant to land an aircraft off a military installation? Maybe the answer can be found by examining a recent precautionary landing. In this instance, the pilot was transporting a general officer when he encountered inclement weather. As the flight continued, weather conditions deteriorated. Finally, the general suggested that they should land until the weather improved. The pilot agreed that a precautionary landing was in order but that he was *obligated* to set the aircraft down on a military reservation. The general eliminated that problem by assuming full responsibility for any repercussions that might arise from a precautionary landing made off the reservation. A landing was made with no damage and no repercussions.

Somewhere along the line, some Army aviators have acquired the mistaken notion that a precautionary landing must be made either at established airfields or on a military reservation. Maybe these pilots are reading par. 3-15b of AR 95-1, which states that major Army commanders must authorize the use of temporary landing areas off military installations. Reading further, they would find that par. 3-15c authorizes aviators to select landing and takeoff areas when performing lifesaving missions or in the event of an in-flight emergency which makes further flight inadvisable. The proposed revision to AR 95-1 will eliminate references to in-flight emergencies and will authorize aviators to make a landing in any suitable area when further flight is inadvisable—as determined by the PIC. And we emphasize—the landing can be made anywhere.

When an immediate precautionary landing is deemed advisable *by the pilot,* rotary wing aircraft may be landed *in any suitable landing area.* And while pilots of fixed wing aircraft will normally make a precautionary landing at the nearest available airfield, *they may,* if the situation warrants it, make a precautionary landing in any suitable area, whether prepared or unprepared.

Of course, when aircraft damage is either known or suspected, not only are aircraft to be landed but they are to remain on the ground until released by the maintenance officer.

Although, in the one example cited, a damaged aircraft was flown back to the military reservation without further incident, that is not always the case. Continued flight when a precautionary landing is in order—for any reason—can prove extremely risky. Many a pilot has gotten into trouble by pressing on to his intended destination when he should have aborted his flight.

Don't be misinformed about *when* and *where* to set it down.

When: The PIC deems necessary.

Where: Any suitable landing area.

A QUICK ONCE-OVER

THERE'S ENOUGH statistical evidence to show that preflight checks are sometimes handled on a hit or miss basis, with the accent being on the miss more often than not. We can't say how many people are getting away with negligent check procedures. **So far,** we can't, that is. The list of those who haven't gotten away with it speaks for itself.

The list among other things shows that when it comes to preflight, what at the start seem to be insignificant items are the ones that later turn out to be accident cause factors. Take a look at some mishaps brought on by overlooking the not-so-minor details.

- Gradual loss of No. 2 engine oil pressure in a U-21 brought on a precautionary landing. The starting point? The pilot had failed to secure the oil cap. The oil siphoned out of the oil filler cap. Preflight failure.
- Because the pilot did not check the circuit breakers before takeoff, the flap and gear circuit on a U-8D breaker was left out. Naturally the gear wouldn't retract. Preflight failure.
- A precautionary landing was made when an OH-6A engine oil bypass light came on. If the pilot had bothered to check the oil level before takeoff the light wouldn't have come on. Preflight failure.

Over the years, failure to properly preflight aircraft has resulted in engines being started with main rotor blade tie-downs installed and aircraft being flown with seatbelts dangling outside doors, fuel quick disconnect couplings improperly secured, cotter pins missing from critical components, improperly installed fuel caps, external gust locks left in place, and a host of other discrepancies. These errors have caused in-flight emergencies that often ended in damage to equipment, and sometimes the destruction of aircraft and loss of lives. The sad part is that every one of these mishaps could have been easily prevented had preflight inspections and operational checks been performed by-the-book.

Why do pilots fail to comply with this basic requirement? Reasons vary, but a sense of urgency to start the mission is a prime one. It was such a sense of urgency that caused an IP to perform a hurried preflight and cockpit check of his aircraft. In doing so, he failed to note that one elevator gust lock had not been removed. The aircraft crashed on takeoff, killing all three occupants.

The checklist is one of the first things which go out the window when time and patience run short. In a

depressing number of cases, when the checklist goes out the window so do the pilot and his crewmen—**sooner or later.**

Overconfidence in the ability of the crew chief and other maintenance personnel is another reason. The rash of fuel quick disconnect couplings separating during flight a number of years ago serves as a good example of pilots overrelying on their crew chiefs. When this happens, the established system of checks and balances designed to prevent an error on the part of one individual from going undetected by another is nullified.

A third reason is sheer complacency. To be sure, if you stick around Army aviation for a while, you will become familiar with the checklist, even thoroughly familiar. So familiar, in fact, that you can become an easy victim of complacency and fall into that ho-hum attitude which can do you in.

Carelessness, or complacency, concerning the checklist probably stems from the fact that relatively few checks, no matter how detailed and careful, turn up anything seriously wrong. So why bother when the odds are with you? One veteran pilot who retired recently after 6,000 hours in the air in and out of combat noted that there had been only two times in his entire career when a check showed something which prevented takeoff. That's not the point. If he hadn't spotted the trouble the first time there wouldn't have been a second. If he hadn't nailed it the second time he never would have totaled 6,000 hours. He didn't allow complacency to hang around his neck like a tombstone.

Following the established checklist to the letter is the only answer. Not just one of the answers. The only answer. In fact, it is required. AR 95-1 stipulates, in no uncertain terms, that unit commanders ensure that aircrew checklists be followed in all cases to ward off inadequate starting, runup, takeoff and landing. The AR is just what it says, a regulation, and Army regulations aren't exactly in the same class as the kind but gentle advice you get from Dear Abby and which you are free to take or leave alone.

Complementing AR 95-1 is the dash 10 CL which provides standard guides to make sure checks are made according to the book. The message is loud and clear. Every unit commander has a stated responsibility to see that all hands follow the checklist from top to bottom all the way without skipping any thing. And the only way to do it is to do it with book in hand.

The checklist is a matter of individual responsibility. You know this. But how many times have you heard (or said yourself when you were in a hurry): "The aircraft is okay. Let's just give it a quick once-over."

Or have you been handed a "revised" checklist with the famous last words: "Never mind what they taught you at school. We do things differently out here."

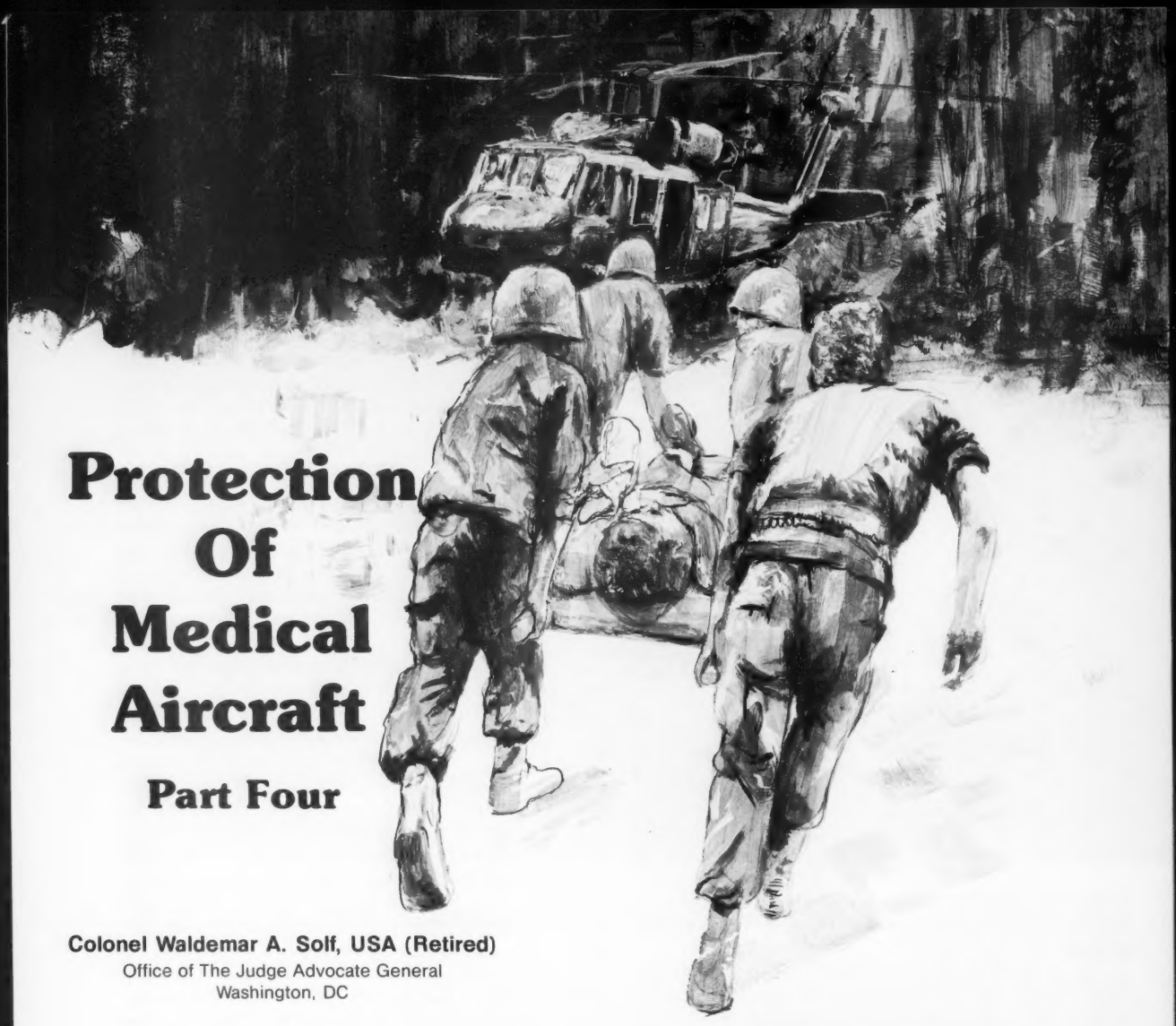
Do you always insist on a verbal call-out when you are following the checklist and if you don't get verbal confirmation do you asume the worst?

If you are interrupted during a check, do you take up where you left off, or do you start all over again as you should?

Do you always make certain the checklist is in the aircraft?

With the peak summer flying period upon us, we can expect an increase in accidents caused by preflight failure unless every pilot recognizes the absolute necessity of following the checklist to the letter.

You are fooling nobody, including yourself, when you skip or do an inadequate job on a preflight or operational check because of too much pressure, not enough time, fatigue or a self-induced idea that the checklist isn't all that important in the first place.



Protection Of Medical Aircraft

Part Four

Colonel Waldemar A. Solf, USA (Retired)
Office of The Judge Advocate General
Washington, DC

PROTOCOL I, ANNEX I, Chapter III
DISTINCTIVE SIGNALS

* * * * * *

Article 5—Optional use

1. Subject to the provisions of Article 6 of these Regulations, the signals specified in this Chapter for exclusive use by medical units and transports shall not be used for any other purposes. The use of all signals referred to in this Chapter is optional.

2. Temporary medical aircraft which cannot, either for lack of time or because of their characteristics, be marked with the distinctive emblem, may use the distinctive signals authorized in this Chapter. The best method of effective identification and recognition of medical aircraft is, however, the use of a visual signal, either the distinctive emblem or the light signals referred to in Articles 7 and 8 of these Regulations.

COMMENT: The term "optional" in paragraph 1 means that the Party using medical transport may, but is not required to use the signals described in chapter; the light signal prescribed in Article 6; the radio signal described in Article 7; and the electronic signal described in Article 8.

Under the provisions of Article 18 (2) the adverse Party is obliged to endeavor to adopt methods and procedures which will make it possible to recognize medical units and transports using the distinctive emblem and distinctive signals. With respect to medical aircraft these methods and procedures should be commensurate with the Party's capability to engage aircraft. Thus, a Party whose antiaircraft capability is based on visual

target acquisition need not install a system for recognizing the electronic signal. Conversely, a Party which uses radar target acquisition systems, should provide for methods and procedures which will recognize the electronic signal.

The ICRC considered the distinctive signals as an extension of the distinctive emblem and proposed a rule to the effect that signals may be used only by units and transports marked with the distinctive emblem. This rule remains applicable to permanent medical aircraft. Recognizing that temporary medical aircraft may not have an opportunity to display the distinctive emblem under emergency circumstances, the use of the signals by temporary medical aircraft is authorized under such circumstances. A non-mandatory statement is included indicating that some visual means of identification is highly recommended. Thus, the light signal should be used in addition to the radio or electronic signal if the distinctive emblem is not available.

Article 6—Light signal

1. The light signal, consisting of a flashing blue light, is established for the use of medical aircraft to signal their identity. No other aircraft shall use this signal. The recommended blue colour is obtained by using, as trichromatic co-ordinates:

green boundary $y = 0.065 + 0.805x$
white boundary $y = 0.400 - x$
purple boundary $x = 0.133 + 0.600y$

The recommended flashing rate of the blue light is between sixty and one hundred flashes per minute.

2. Medical aircraft should be equipped with such lights as may be necessary to make the light signal visible in as many directions as possible.

3. In the absence of a special agreement between the Parties to the conflict reserving the use of the flashing blue lights for the identification of medical vehicles and ships and craft, the use of such signals for other vehicles or ships is not prohibited.

COMMENT:

a. Article 6 establishes the flashing blue light as a means to identify medical aircraft. The article specifically permits the use of the blue light on vessels and vehicles. It will not interfere with the widespread use of blue lights by police and other emergency vehicles on land, nor with the use of blue lights at sea unless Parties, by special agreement, adopt blue lights for the exclusive use of medical vehicles or ships and craft.

b. The Diplomatic Conference has adopted a resolution requesting IMCO to include a description of the Light signal and the distinctive emblem in the International Code of Signals and to give consideration to the development of additional visual signals including unique flag signals and a unique flare combination as additional or alternative visual identification of medical transports.

Article 7—Radio signal

1. The radio signal shall consist of a radiotelephonic or radiotelegraphic message preceded by a distinctive priority signal to be designated and approved by a World Administrative Radio Conference of the International Telecommunication Union. It shall be transmitted three times before the call sign of the medical transport involved. This message shall be transmitted in English at appropriate intervals on a frequency or frequencies specified pursuant to paragraph 3. The use of the priority signal shall be restricted exclusively to medical units and transports.

2. The radio message preceded by the distinctive priority signal mentioned in paragraph 1 shall convey the following data:

(a) call sign of the medical transport;
(b) position of the medical transport;
(c) number and type of medical transports;
(d) intended route;
(e) estimated time en route and of departure and arrival, as appropriate;
(f) any other information such as flight altitude, radio frequencies guarded, languages and secondary surveillance, radar modes and codes.

3. In order to facilitate the communications referred to in paragraphs 1 and 2, as well as the communications referred to in Articles 22, 23, 25, 26, 27, 28, 29, 30 and 31 of the Protocol, the High Contracting Parties, the Parties to a conflict, or one of the Parties to a conflict, acting in agreement or alone, may designate, in accordance with the Table of Frequency Allocations in the Radio Regulations annexed to the International Telecommunication Convention, and publish selected national frequencies to be used by them for such communications. These frequencies shall be notified to the International Telecommunication Union in accordance with procedures to be approved by a World Administrative Radio Conference.

COMMENT:

a. This articles provides:

(1) A distinctive radio signal for the identification of medical units and transports consisting of:

(a) A priority signal with a call such as "Red Cross," "Humanity," "Mercy" etc. to be designated by a World Administrative Radio Conference of the ITU (WARC), and

(b) Form for identifying message to be used by medical transports.

(2) Procedures for the designation of national frequencies, either unilaterally or by agreement, which will be used by medical transports or units for:

(a) identification as provided in this article, and

(b) communication in connection with notifications, agreements, and orders to land for inspection as provided in Articles 25, 26, 27, 28 Paragraph (4), 29, 30, 31 of Protocol I. The communication aspect is covered by Article 9 of the Annex.

b. The Conference also adopted a resolution requesting Governments to take appropriate implementing action through the 1979 general WARC to amend the Radio Regulation.

Article 8—Electronic identification

1. The secondary surveillance radar (SSR) system, as specified in Annex 10 to the Chicago Convention on International Civil Aviation of 7 December 1944, as amended from time to time, may be used to identify and to follow the course of medical aircraft. The SSR mode and code to be reserved for the exclusive use of medical aircraft shall be established by the High Contracting parties, the Parties to a conflict, or one of the Parties to a conflict, acting in agreement or alone, in accordance with procedures to be recommended by the International Civil Aviation Organization.

2. Parties to a conflict may, by special agreement between them, establish for their use a similar electronic system for the identification of medical vehicles, and medical ships and craft.

COMMENT: In 1972 it was expected that a universal mode and code could be designated as a distinctive electronic signal for medical aircraft. By 1976 it became apparent that available modes and codes for this purpose are getting preempted for other purposes. Accordingly the present text provides for multilateral, bilateral or unilateral designation at such codes. The text as drafted does not preclude the ultimate designation of a universal code on a predetermined mode of the SSR system, but it also provides for the contingency that no such agreement can be reached within ICAO.

The Conference adopted a Resolution requesting ICAO to take necessary action to implement this Article.

Chapter IV
COMMUNICATIONS

Article 9—Radiocommunications

The priority signal provided for in Article 7 of these Regulations may precede appropriate radiocommunications by medical units and transports in the application of the procedures carried out under Articles 22, 23, 25, 26, 27, 28, 29, 30 and 31 of the Protocol.

Article 10—Use of international codes

Medical units and transports may also use the codes and signals laid down by the International Telecommunications Union, the International Civil Aviation Organization and the Intergovernmental Maritime Consultative Organization. These codes and signals shall be used in accordance with the standards, practices and procedures established by these Organizations.

COMMENT: Chapter III provides for unique distinctive signals for the exclusive use of medical units and aircraft. This article merely invites attention to the fact that medical units and transports may also use the radio codes and signals prescribed by ITU, ICAO, and IMCO under the conditions and regulations prescribed for their use by these organizations. H. C. 102, *International Codes of Signals* published by IMCO contains most of these codes and signals.

Article 12—Flight plans

The agreements and notifications relating to flight plans provided for in Article 29 of the Protocol shall as far as possible be formulated in accordance with procedures laid down by the International Civil Aviation Organization.

Article 13—Signals and procedures for the interception of medical aircraft

If an intercepting aircraft is used to verify the identity of a medical aircraft in flight or to require it to land in accordance with Articles 30 and 31 of the Protocol, the standard visual and radio interception procedures prescribed by Annex 2 to the Chicago Convention on International Civil Aviation of 7 December 1944, as amended from time to time, should be used by the intercepting and the medical aircraft.

COMMENT: Articles 27 and 31 deal with the action to be taken when a medical aircraft overflies, without permission, territory controlled by enemy forces or that of neutral or other state not a Party to the conflict. Both articles provide that when recognized as medical aircraft "every reasonable effort should be made to give the order referred to in Article 31, paragraph 1 of the present Protocol or to take other measures to safeguard the interests of the said Party, and to allow the aircraft time for compliance, before attacking it." Article 30 provides that aircraft overflying such territory may be ordered to land for inspection. In 1975, Annex 2 of Chicago Convention on International Civil Aviation was amended by an attachment laying down the procedures for the Interception of Civil Aircraft. The Conference considered that the standard visual and radio intercept procedure prescribed in the ICAO documents are appropriate for use in the event that intercept aircraft are used to verify the identity of medical aircraft in flight and to order them to land.

KNOW THE THREAT

The Indirect Fire Threat

(To Army Aviation)

Captain Robert K. Stephan
A Battery, Staff and Faculty Bn
Fort Sill, OK

TANGO 7 Charlie, Tango 8 Charlie, this is India 3 X-Ray, I've got three T-62s; attack from positions three and four, target is 110 degrees at 3,400 meters.

This is 7 Charlie, Roger out.

This is 8 Charlie, Roger out.

Tango 7 Charlie and Tango 8 Charlie are each flying an AH-1S Cobra attack helicopter, armed with eight tube-launched, optically-tracked, wire-guided (TOW) missiles. India 3 X-Ray is the team scout and collectively they make up a light fire team of an attack helicopter platoon. Their platoon is part of an attack helicopter company which is under operational control of a mechanized infantry brigade defending against a massed enemy force attempting to break through friendly defenses. Their company was committed an hour earlier to assist in defeating this massed armor attack. The other two platoons of the company already have engaged the enemy and are rearming and refueling. Their combined fires inflicted heavy losses on the attacking force.

After acknowledging India 3 X-Ray's call, Tango 7 Charlie and Tango 8 Charlie move forward from their holding area to firing positions three and four. The terrain is gently rolling wooded ridges with several prominent pinnacles in the area. The ground is dry and dusty in several areas. Firing positions three and four are about 800 meters apart and there is a pinnacle about midway between them. These positions were used successfully about an hour earlier by another light fire team for their initial engagements.

Seven Charlie and 8 Charlie departed the holding area using terrain flight to move to their firing positions. They were careful to avoid dusty areas and only raised one small cloud during their movement. They used the terrain to mask their movement and are confident that their attack will be a surprise.

They both survey their firing positions and select the optimum location for target attack. When both crews are ready, they unmask and acquire the enemy tanks. They each launch a missile and guide it to the target, destroying two enemy tanks. Both aircraft quickly remask and 7 Charlie observes tracer rounds passing directly over his position.

India 3 X-Ray, this is Tango 7 Charlie, two missiles launched, two tanks destroyed, one moved to.... .....(silence)

Tango 7 Charlie, India 3 X-Ray; over

Tango 7 Charlie, India 3 X-Ray; over

Tango 8 Charlie, India 3 X-Ray; over

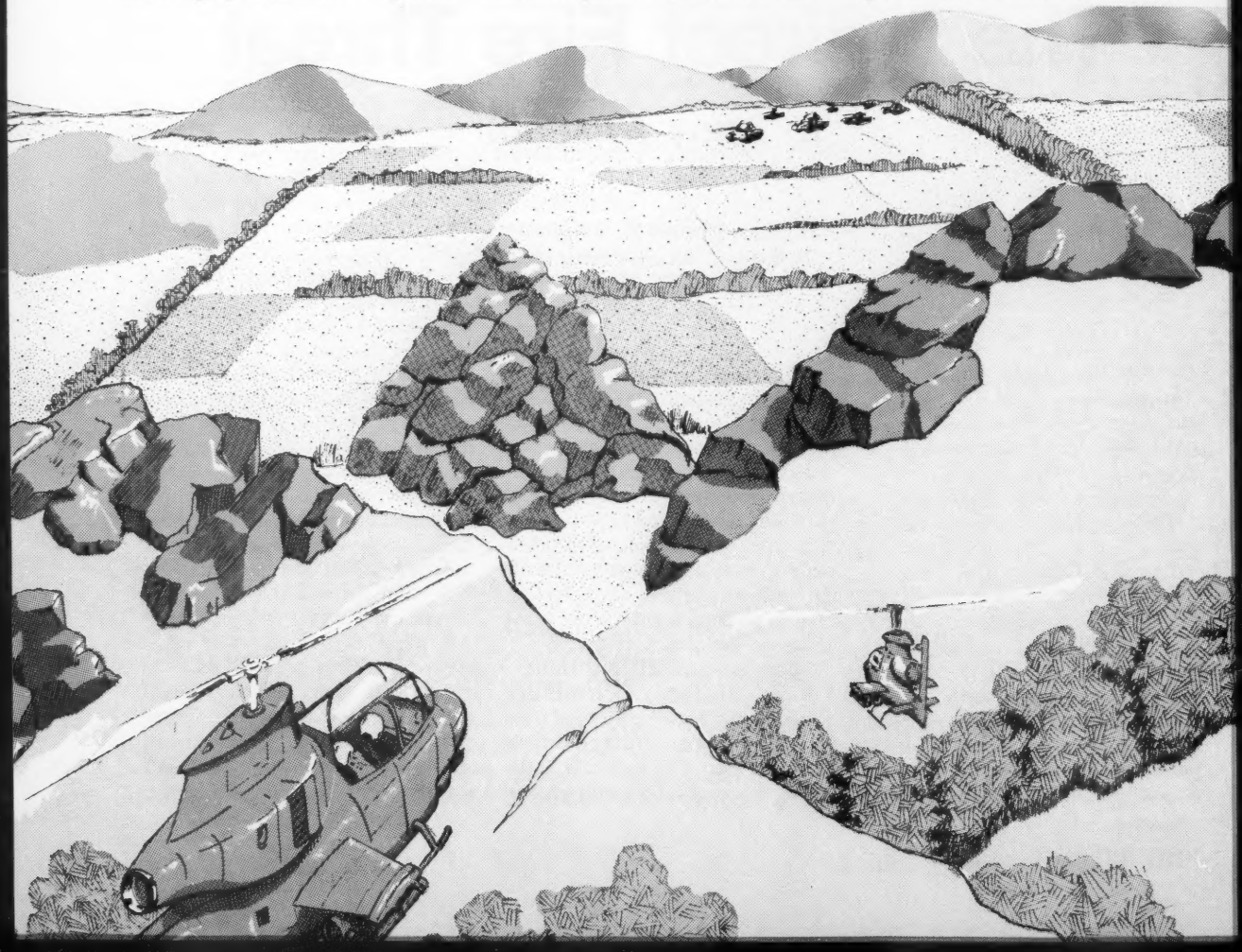
What happened to Tango 7 Charlie and Tango 8 Charlie? Both crews were highly skilled and respected for their ability and professionalism. They had planned the mission thoroughly, operated their aircraft well within limitations and used the TOW range capability to avoid enemy air defenses and ground fires. They performed their mission just as they had performed it in training many times before. Why then were they silenced and unable to continue their mission?

Tango 7 Charlie and Tango 8 Charlie were defeated by enemy indirect fire!

Terrain flight tactics and the range capability of the TOW missile system have proven very effective in neutralizing the direct fire air defense threat to attack helicopters. These same tactics expose all aviation units to a new threat that is not always recognized and understood. In the past, indirect fires were ineffective against aircraft due to the altitude and airspeed at which they operated. Terrain flight eliminates the altitude protection, and in many instances reduces or eliminates the speed of aircraft operations, making them vulnerable to attack by indirect fire.

Army aircraft probably will not have a high priority as targets for threat indirect fires. However, due to the lethality of the attack helicopter, it may, at times, become a priority target for all threat weapons.

In the case of Tango 7 Charlie and Tango 8 Charlie, the two platoons that preceeded them in engaging the enemy force had had considerable success. They had fired a total of 88 missiles and destroyed more than 60 of the attacking armored vehicles. Threat air defense and direct fire weapons had been ineffective against the attacking helicopter. Thus, the threat commander



directed accompaning mortars and artillery to suppress or destroy helicopter targets as they were acquired. Threat observers began looking for attack helicopters and planning fires on known and likely helicopter firing positions.

Tango 7 Charlie and 8 Charlie were initially acquired from a command observation post while moving from the holding area to their firing position. The observer only caught a glimpse of one of the aircraft and did not track them all the way. The observer's attention probably was drawn to the aircraft by movement, glint off the canopy or rotor system, or possibly by the small dust cloud created by one of the aircraft. The SA-6 and ZSU-23-4 radars and/or ground surveillance radar could have been used to alert the observer and direct attention to areas where the aircraft were operating.

Once alerted, the observer called in a mission on the previously used firing positions and two other likely positions in the area of the pinnacle. The observer was able to accurately locate these positions due to their proximity to the prominent terrain feature. The high explosive rounds, fuzzed for air bursts, were on the way to the target within seconds after the call for fire was transmitted. Tango 7 Charlie and Tango 8 Charlie felt secure in their defilade positions until the artillery rounds began exploding.

The indirect fire threat is real and must be taken into consideration during training and when planning aviation operations regardless of the type aircraft being employed. Because aircraft operating within 5 kilometers of the forward edge of the battle area (FEBA) can be visually acquired, they face the greatest possibility of attack. To defeat this threat, aviators must be aware of, and understand, the capabilities and limitations of the threat indirect fire systems.

Threat doctrine calls for the employment of massive amounts of indirect fire. The majority of this fire will be planned and delivered as a coordinated part of the overall operation. Unless aircraft are caught in the initial volley of planned fire, indirect fire can be seen and thus avoided.

Threat observers operate from advance observation posts located in the forward lines of supported motorized rifle or tank units and from main observation posts. The main observation post for a motorized rifle or tank battalion normally is within 500 to 1,000 meters of the FEBA. Observers are equipped with binoculars, range measuring equipment and radio equipment. They can detect cargo, utility and attack helicopters out to 5 kilometers with organic observation devices. These observers have the capability of calling for and adjusting artillery fires.

Adjusting pinpoint fire on aerial targets is not practical. However, surprise massed fire delivered against planned targets and called for by frontline observers can be delivered quickly and effectively. Due to the lethality of the attack helicopter and the use of terrain flight tactics, it is quite possible that threat commanders will task a portion of their indirect fire weapons to attack these targets.

Current aviation training and doctrinal publications cover the air defense threat in great detail. The indirect fire threat to Army aviation is all too often either ignored or only addressed briefly. Indirect fire is the most difficult part of the battlefield environment to simulate and, as a result, often is overlooked during aviation unit training. If aviation units are to "train as they will fight," the indirect fire threat must be included in the training environment.

There are ways to include the indirect fire threat in unit training that do not require large expenditures of training time or resources. A good topic for inclement weather classes is the threat indirect fire system. Most aviation units have at least one person from Field Artillery who should be happy to present such training. The U.S. Army Field Artillery School, Ft. Sill, OK, has an exportable Threat Artillery class. The lesson plan and training aids can be obtained by calling AV 639-3195 or writing Commandant, USAFAS, ATTN: ATSF-CR, and requesting Threat Artillery, TO-70CN.

Field training exercises can be expanded to show all aviators how they look from the ground and just how hard or how easy they are to detect and locate from ground observation posts. During platoon level training, nonflying aviators can be used to operate likely enemy observation posts 3 to 5 kilometers from the flying platoon's training area. Using binoculars, watches and a map of the area, the observers try to detect aircraft and plot their positions. The time of detection and the time spent in each location can be recorded and used to critique the flying platoon on their mission performance. Aviators performing as observers will gain new perspectives and will be able to apply lessons learned on the ground to their future flights.

For company-size exercises, threat observers can probably be obtained from division artillery assets. Fire support teams can be detailed to perform as threat observers and participate in critique of the exercise. In addition, division artillery has one moving target locating radar that could serve not only as an early warning device, but also add to the overall training environment through coordination and cuing activities between the ground-based aviators and the radar section. Likewise, aviators can then work on methods to detect and defeat such devices.

The training possibilities are unlimited. What must be done is to recognize the indirect fire threat, train all aviators on the capabilities and limitations of the threat indirect fire systems, and develop methods of integrating threat tactics into our training exercises. Then and only then will we be able to accurately say, "We train as we will fight."

EPMS CORNER Enlisted Personnel Management System

Running The Big Aviation Maintenance Company

SFC Douglas E. Allen
Aviation Career Advisor
U.S. Army Military Personnel Center
Alexandria, VA

HAVE YOU EVER dreamed you were the general manager of a huge aviation maintenance company? Well, let's see what we would like to have to work with if we were in that position. We have just landed a contract which will last at least 50 years.

We will be maintaining several types of aircraft built by different manufacturers designed to perform several different missions. We will perform all maintenance regardless of how extensive on the airframe, powerplant, and all systems and components.

Taking these factors into consideration we will hire a work force which will allow us to accomplish all required work without having surplus employees sitting around drawing a paycheck without a job to do. We must ensure we have the right mix of aircraft mechanics and component mechanics with the proper qualifications.

The objective of the Army's personnel management system is to maintain an efficient force in which all military occupational specialties (MOSs) are balanced to ensure the Army's needs for people are met.

Under the Army's enlisted force management plan an objective force has been set. The force is structured with 680,000 enlisted Soldiers. Sixty-three percent are in grades E4 through E9, while only 45 percent are career Soldiers with more than 3 years of service. All MOSs in the objective force have goals set for paygrade and years of service. The Army's personnel managers at Military Personnel Center (MILPERCEN) are working to achieve the desired objective force distribution by 1983.

Management actions taken in 1978 are directed toward bringing the current force closer to the 1983 objective. We are striving to reduce overages and shortages in order to balance each MOS.

The objective force is based on a combination of factors. In order to maintain a standing Army of enough career Soldiers with military experience, yet provide for career progression and opportunity for first term Soldiers, a blend of privates and sergeants, recruits and experience is needed.

Guidelines for the objective force were designed to help the Army stay within the budget set by Congress and Department of Defense. The process to achieve this objective was started in August 1975.

With the career force being limited to not more than 45 percent of the Army, and not more than 63 percent in the top six grades, some changes had to be made.

The Army's authorization documents allowed for about 72 percent in grades E4 through E9. There have not been Soldiers to fill the spaces in each grade because the budget held the grade structure to about 63 percent. The Enlisted Personnel Management System (EPMS) task force reviewed the authorization documents to determine where the E4 through E9 requirements could be reduced in grade.

Reductions in standards of grade authorizations have been made to bring the percentage of spaces in the top six grades down to 63 percent. These reductions mean more than one-third of the entire enlisted force will be in grades E3 and below.

A profile has been developed for each MOS to show years of service requirements. The profile reflects the number of Soldiers required in each year group to keep the MOS in balance. Statistical data such as reenlistment and retention rates are taken into consideration to determine how many people should be enlisted into an MOS each year to provide an adequate flow of people through the years to maintain a balance.

If an MOS is out of balance, action is taken to restore the balance. Sometimes people are denied reenlistment in the MOS due to overage status in their particular year group. In the case of a shortage year group a bonus may be paid to improve reenlistments and attract entry to the MOS. In some MOSs personnel are reclassified out of overage year groups into MOSs which are short for their year group.

Currently within CMF 67, aviation maintenance, action is being taken to balance MOS by years of service. MOS 67G, airplane repairer, is in an overage status worldwide. People in overage year groups are being selected for reclassification/retraining into other aviation maintenance MOSs.

Factors being considered in the reclassification decision are previous military schooling and experience, individuals' desires as reflected on a Soldiers' Enlisted Preference Statement, and career progression. Request for reclassification out of overage year groups are approved when possible to help balance the MOS being reclassified from and also balance the one in which reclassified. After 67G is restored to a balanced status, action will be taken to balance other MOSs within the aviation maintenance field.

The status of each enlisted MOS is listed in DA Circular 611-56, "Enlisted Career Force Sustainment Program." Soldiers are grouped by fiscal year group, based on when they came into the Army. The strength of their year group is compared with the Army's requirement for Soldiers in that year group in that MOS. The status is either over, balanced or short.

Soldiers will stay in the same fiscal year group throughout their career, unless they are separated from service and later rejoin. Upon rejoining, the Soldiers' fiscal year group will be based on an adjusted basic active service date (BASD). The Soldier may change MOS but will still be in the same fiscal year group.

The status of an MOS is considered during the planning for service school quotas. Based on reenlistment and retention rates and service school failure rates, the nonprior service requirement for each year is calculated and that number of school seats are designated for nonprior service personnel. If an MOS is in a shortage status in a particular year group, service school seats are reserved for retraining prior service personnel into the MOS. If the MOS is in an overage status in particular year groups then retraining into the MOS is closed to personnel in those year groups.

By regulating the number of people allowed to reenlist in an MOS each year the Army can more effectively maintain a balance in MOSs. When the appropriate number of personnel have reenlisted in the MOS to maintain a balance in the particular year group, reenlistment is closed for that MOS in that year group. The overage personnel are then directed into a shortage MOS to help create a balanced Army.

To achieve the MOS balance throughout the Army will take many years. Many personnel who entered military service during the Vietnam era may find that their services are not in demand within the MOS in which they originally trained. This is evidenced by the involuntary reclassification program used during the past 5 years to provide adequate NCOs for the combat arms and other critically short MOSs.

MOS status influences promotions. Overage MOSs have much slower promotions than shortage MOSs. By directing personnel in an overage MOS to reenlist in a shortage MOS the Army is helping improve a Soldier's chances for promotion. Personnel in an overage MOS may be directed into other aviation MOSs which are short in their year group. At the same time Soldiers may be reclassified into the MOS in shortage year groups. Maximum consideration is being given to the Soldier's future while at the same time shaping the future of the Army.

MILPERCEN does not pay directly the wages in our big maintenance company but it is their responsibility to develop the work force to provide career opportunity for the Soldiers as well as developing a work force that can be paid within the Congressional budget constraints imposed on the military forces. Too many airplanes and too few systems repairers makes a very ineffective aviation maintenance company.

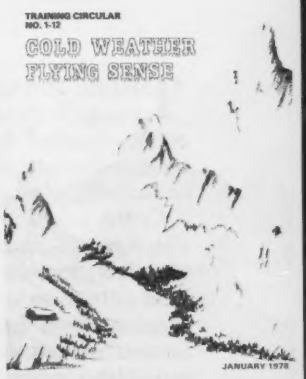
–10 Corner

Adverse Environmental Conditions Operations

TRAINING CIRCULARS with a "new look" are being published that contain information applicable to extreme environments in which Army aircraft may be required to operate. One distinct advantage of these circulars is that they provide a source of general information applicable to all Army aircraft that will not be duplicated in aircraft operators' manuals.

For example, the recently released TC 1-12, "Cold Weather Flying Sense," discusses precautions to be observed during hover, taxi, takeoff and landing in snow conditions. Individual aircraft operators manuals will only address specific characteristics such as use of brakes and steering while taxiing on snow and ice or operating aircraft weapons systems in icing, rather than repeat the general precautions presented in the training circular.

Two other training circulars on adverse environmental conditions that will be appearing soon are: TC 1-10, "Mountain Flying Sense" and TC 1-13, "Hot Weather Flying Sense."



SEND-A-MESSAGE

WO1 Gary W. Helmer
2nd Squadron, 17th Cavalry
101st Airborne Division (Air Assault)
Fort Campbell, KY

Simple, flexible, workable and versatile, SAM provides a viable system of communications during periods where it would otherwise be impossible to communicate

THERE IS a need on the modern battlefield for a means of communication during periods of increased electronic warfare (EW) or radio silence.

Could a system be developed which would enable our troops to effectively communicate in a battlefield situation? Captain James MacSwords and Captain William Soneira, members of the 2nd Squadron, 17th Cavalry, 101st Airborne Division (Air Assault), Ft. Campbell, KY, believed there was a way and invented a system known as Send-A-Message (SAM).

Using a numerical and color coded six-by-six matrix, SAM provides a simple, flexible, one-handed means of communicating air-to-air, air-to-ground, ground-to-air and ground-to-ground.

"The numbers and colors reinforce each other during periods of limited lighting, canopy reflections, and at increased distances," explained CPT MacSwords. "The system also can be used with light-gun systems and night vision devices by substituting the digit code with a series of dots and dashes."

The system is a set of five flip cards numbered 1 thru 5 mounted on a solid black backboard numbered "6." "By using six basic colors," CPT Soneira said, "the system pro-

A typical message using the SAM system looks something like this (please see code chart on the following page): Figure 1: Number 33 indicates tanks; Figure 2: Number 36 tells the ground troops the tanks are in attack position; Figure 3: Number 14 indicates that the DISTANCE of the tanks will follow; Figure 4: By referring to their code chart, the ground troops know that the tanks are 3,600 meters away

vides 36 signal/message combinations and eliminates the problem of shades of colors. Therefore, blue is always 'one'—no light blue or dark blue combination to be confused under different lighting conditions."

The system was tested at Fort Stewart, GA during a squadron field training exercise. "We used the system at distances of 25 to 200 meters," CPT Soneira said, "and the numbers and colors were very distinguishable, though at times, windscreen glare caused us some problems."

"With very little training our crews were able to send and decode messages with very little trouble and virtually no errors," said CPT MacSwords. "We decoded messages as fast as they could be sent to include distances to 100 meters and azimuths to the nearest 10 degrees."

The basic code combinations were chosen for simplicity and they include: green/green (2-2), indicating enemy ground troops. Yellow/yellow (3-3), stands for enemy armor while red/red (4-4) would indicate DANGER. White/white (5-5) denotes "all clear."

"We designed the system for scout/gunship use," said CPT MacSwords. "But, we found that during the test period at Fort Stewart we could send six digit coordinates. It is a little more complex and requires a

"...It would be impossible to use the radio and further give away your position and signaling by hand would do you no good. With SAM, however, you could signal the convoy of the ambush, give its exact position and turn the tide of possible disaster."

longer sequence of codes. We also discovered that by designating checkpoints during premission planning and by using polar coordinates (azimuths and distances) from the preselected checkpoints, we could alleviate the extra long code sequence."

"An example would be a situation like this," explained CPT Soneira. "Say you were flying cover for a convoy and were under a period of strict radio silence. You are flying along and spot an enemy ambush set up on the road a few miles ahead of the friendly convoy. It would be impossible to use the radio and further give away your position and signaling by hand would do you no good. With SAM, however, you could signal the convoy of the ambush, give its exact position and turn the tide of possible disaster.

To make the system even more effective, a system of separate codes, one each for infantry, armor and other type units, could be added as a SPARE system to the Communication-Electronics Operation Instructions (unclassified). "In other words, an unidentified armor unit could communicate with an unidentified infantry unit in their own language," CPT Soneira concluded.

Simple, flexible, workable and versatile, SAM provides a viable system of communications during periods where it would otherwise be impossible to communicate.

For further information regarding the SAM method of communication, contact:

CPT James MacSwords or
CPT William Soneira
A Troop, 2/17th Cavalry
101st Airborne Division (Air Assault)
Fort Campbell, KY 42223
Phone (AUTOVON)
635-4590/6461

This chart currently is in use by the 101st Airborne Division (Airmobile)

DEFINITION SHEET

CODE	LETTER	A/D	MESSAGE	CODE	LETTER	A/D	MESSAGE
1-1	A	1	AZIMUTH	4-1	S	19	aircraft
1-2	B	2	move, -ing	4-2	T	20	GAS/CBR
1-3	C	3	checkpoint	4-3	U	21	artillery
1-4	D	4	DISTANCE	4-4	V	22	DANGER
1-5	E	5	return	4-5	W	23	CEASE FIRE
1-6	F	6	follow me	4-6	X	24	Mine(s), -ed
2-1	G	7	GRID	5-1	Y	25	on the road
2-2	H	8	troops	5-2	Z	26	camouflaged
2-3	I	9	squad	5-3	AA	27	stationary
2-4	J	10	platoon	5-4	BB	28	FIRE
2-5	K	11	company	5-5	CC	29	ALL CLEAR
2-6	L	12	holding position	5-6	DD	30	friendly
3-1	M	13	attack helicopters	6-1	EE	31	bridge/ford
3-2	N	14	BMP/APCs	6-2	FF	32	LZ/PZ
3-3	O	15	tanks	6-3	GG	33	I SPELL
3-4	P	16	DOL/refuel	6-4	HH	34	recon
3-5	Q	17	HQ/CP	6-5	II	35	resupply, class "___"
3-6	R	18	attack position	6-6	JJ	36	SPARE

AZIMUTH to nearest 10°. DISTANCE to nearest 100 meters. GRID: 1-1 through 2-4 equals 1 through 9 and 0.
COLORS: 1—Blue; 2—Green; 3—Yellow; 4—Red; 5—White; 6—Black.

Aviation Notes

Major Jacob B. Couch Jr.
Aviation Management Branch
U.S. Army Military Personnel Center

OPERATIONAL Credit. Are you occupying an operational flying position? You might think you are; but is this claim supported by the authorization documents of your organization? If you can answer yes to the first question but do not have an answer to the second question then continue reading.

The Aviation Management Branch continually receives inquiries about this subject from concerned aviators. Unfortunately these requests are generated usually as a result of individuals receiving notification that they failed to meet the requirements for one of the Aviation Career Incentive Act (ACIA) gates. When this occurs, the aviator usually is completely surprised and has no idea that certain jobs have not received operational credit.

Since 1 October 1977 operational flying duty credit has been computed at Department of the Army (DA) based on aviator assignments reported through the Standard Installation Division Personnel System (SIDPERS). Operational flying credit will be awarded only when aviators are reported as filling valid operational positions. Approved operational flying positions will be identified with a specialty skill identifier of 15A, B, C, D; 51C; 67J; or 71A followed by the appropriate aircraft additional skill identifier (ASI) in the ASI column (figure 1).

Figure 1

15	B	41	1E

A multiple skill position that requires the principal skills associated with the aviation speciality (15) and the specialty skill identifier of a combat aviation officer (B). The secondary position code indicates the position requires an officer with personnel management skills (41). The ASI identifies the position as requiring an officer qualified in the UH-1 aircraft (1E). (A full explanation of all terms can be found in AR 611-101.)

These positions are defined in Army Regulations (AR) 570-1, "Commissioned Officer Aviation Position Criteria," and 611-101, "Commissioned Officer Specialty Classification System."

An individual's current duty data can be reviewed by comparing entries on the DA Form 2-1, personnel qualification record (figure 2) and the officer record brief (ORB) (figure 3). These entries reflect the current duty position recorded on the SIDPERS file and the officer master file. If a review of the above forms reveals a discrepancy, the incumbent might possibly not be receiving operational credit. An immediate visit to your local personnel office can help start corrective action.

Cases that require a complete recoding of positions must be processed in accordance with guidance contained in AR 570-1. These if

Continued on page 48

Figure 2

SECTION II - CLASSIFICATION AND ASSIGNMENT DATA

9 GRADE: PROM IND	ABBR	CODE	10 DATE OF RANK	11 BRANCH: BASIC	CONTROL	DETAIL	12 SERVICE COMPONENT: ABBR	CODE	13 SVC AGREEMENT OR TERM OF SVC: ABBR	CODE	14 ESA OR ETS	15 DELAY IN SEPARATION: ABBR	CODE	16 PRIMARY: MOSC	ASI

19 SMC: YEAR VER	STATUS	20 DUTY: MOSC	ASI	21 ENL/REENL BONUS: MOS	EFFECTIVE DATE	22 PROM MOS	23 LANGUAGE IDENTITY NUMBER 1: DESCRIPTION	CODE	24 LANGUAGE IDE: DESCR
		15B41	1E						

26 INCENTIVE PAY NO. 1 | 27 INCENTIVE PAY NO. 2 | 28 SPECIAL PAY NO. 1 | 29 SPECIAL PAY NO. 2 | 30 | 31 PHYS | 32

SECTION VI - AUTHORIZED POSITION DATA

71 POSITION NO	72 PARAGRAPH AND LINE NUMBER	73 POSITION TITLE	74 AUTHORIZED: MOSC	ASI	75 GRADE: ABBR	CODE	76 BR	77 SUBSTITUTE: MOSC	ASI	78 RQN BR
			15B41	1E						

SECTION VII - CURRENT AND TWO PREVIOUS ASSIGNMENTS

79 SEQ OF ASGD	80 ARRIVAL DATE	81 REPORTING DATE	82 ORGANIZATION	83 UNIT PROCESSING CODE	84 GAINING UPC	85 DEPT DATE

Figure 3

DATE OF AVAILABILITY	DATE OF LAST PCS	SECTION IX - ASSIGNMENT HISTORY	DATE OF LAST OER	ORG ZIP CODE

ASGT	FROM DATE	MO	UNIT NO	ORGANIZATION	STATION	LOC	COMD	DUTY TITLE	DMOS
CURRENT	760107								15B411E00
1ST PREV									
2ND PREV									
3RD PREV									
4TH PREV									

A "DOZER" That Flies?

This article contains a minimum of technical details and is intended to inform and, with photos, show Army aviation personnel some of the new types of payloads they will be transporting in the future

William R. Barwick
Deputy Project Manager for FAMECE/UET
Fort Belvoir, VA

YES! We have a bulldozer that "flies" when the *Family of Military Engineer Construction Equipment,* generally known as FAMECE, is teamed up with the medium lift helicopter for transport. After the CH-47 delivers the vehicles to a site accessible by air, a 15,000 pound power section and one of eight different 15,000 pound work sections are coupled together in about 10 minutes to make a complete vehicle. They can doze, haul, scrape, grade and do most other construction efforts required to build roads, airfields, helicopter pads, hardstands, etc.

The FAMECE, a system of wheeled, airmobile, air transportable construction equipment with a high production capability, was developed by the Clark Equipment Company, Benton Harbor, MI, under contract by the Project Manager, FAMECE/UET (Universal Engineer Tractor, M9), a part of the U.S. Army Mobility Equipment Research and Development Command (MERADCOM) , Fort Belvoir, VA.

When fielded, starting in fiscal year 1981, this system will equip combat engineer troops with 10-ton dump trucks; 2,500-gallon water distributors; 10-cubic yard scrapers; 13-foot moldboard graders; 2½-yard bucket loaders; 30,000-pound dozers; and two compactors, one with combination tamping foot—pneumatic tires, and the other with combination smooth drum—pneumatic tires.

The family of equipment has completed performance qualification testing (PQT) by MERADCOM and is under Operational Test (OT) II at Ft. Bragg, NC by the 618th Engineer Light Company. For the first time, combat engineers will have equipment capable of keeping pace with combat elements they support. When road-bound, FAMECE travels under its own power at 30 miles per hour (mph). This system will add a new dimension to the combat

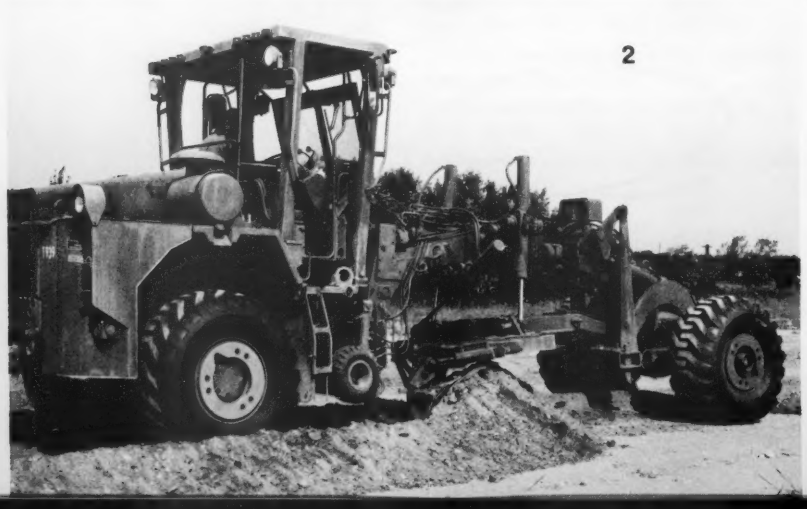
1

engineer's capability to adequately suppor

Three members of the FAMECE family and the loader—have completed the airl helicopter, as well as the airdrop and Low A tem (LAPES) requirements from the C-13

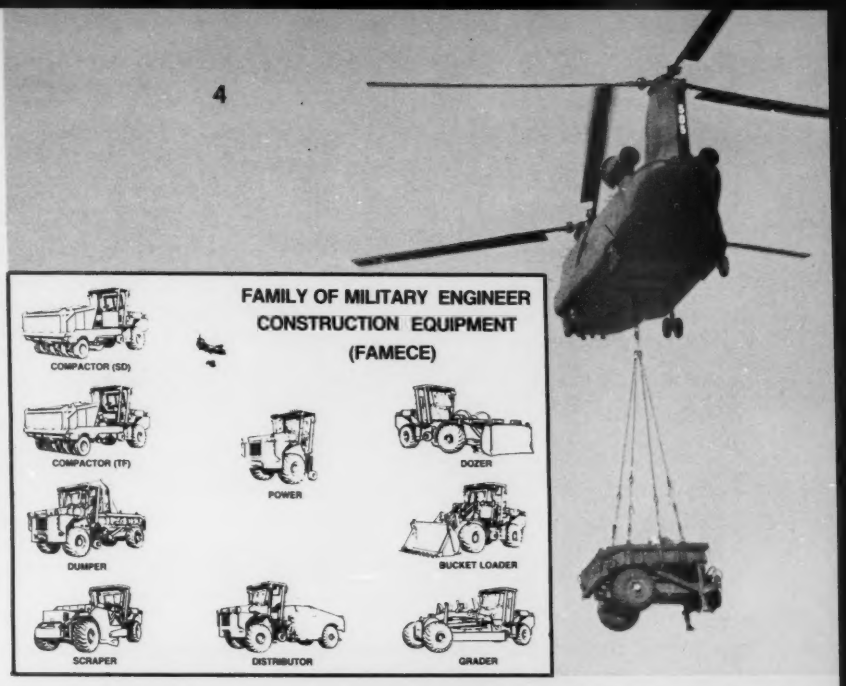
Incidentally, the UET part of the projec sal Engineer Tractor, now called M9. This scraper combination which has a product class dozer, travels cross-country at a rate o of dirt or the equivalent in pallet loaded and dumping the load, and even swims at equipment is already type classified stand

Unfortunately, the M9 cannot fly even copter due to its 30,000 pound weight, bu aircraft in order to be airborne. The M9, give the armored engineer and other com tracked, armor protected, dozer—plus ca other combat forces without being road transporter. Though not tested, it is anticip using the CH-53E helicopter.


2

3

1. FAMECE power module features a rotating operations compartment. The module locates at the rear of the grader, dozer and loader and in front of the scraper, distributor, dumper, roller and compactor. 2. Grader. 3. Dumper vehicle LAPES tested at Yuma Proving Ground. 4. Dumper section airlifted by CH-47 during recent tests at Yuma. 5. M-9 Tractor, full tracked armored, dozer-scraper combination. 6. Power module with distributor. Inset, water distributor in operation



pport other combat forces.
amily—the power section, the dumper
airlift requirements using the CH-47
ow Altitude Parachute Extraction Sys-
C-130 and C-141 aircraft.
oject manager's title stands for Univer-
This is an armored tracked bulldozer,
duction capacity equal to that of a T9
ate of 30 mph, hauls up to 8 cubic yards
ded supplies, is capable of self-loading
s at 3 mph. This piece of construction
standard.
ven with the help of a medium lift heli-
t, but must rely on the C-130 or C-141
M9, to be fielded starting in FY81, will
combat engineer units a highly mobile,
s capability to travel with and support
road-bound by a heavy tractor-trailer
ticipated that the M9 can be transported

AGARD Meets At Ft. Rucker

June Greer
U.S. Army Aeromedical Research Laboratory
Fort Rucker, AL

The goal of the meeting was to stimulate an international technology exchange leading to safer and less demanding environments and operational workloads for helicopter aircrews.

THE NORTH Atlantic Treaty Organization (NATO) Advisory Group for Aerospace Research and Development (AGARD) held its Aerospace Medical Panel (AMP) meeting last May at the U.S. Army Aviation Center, Ft. Rucker, AL. The topic of the conference, hosted by the U.S. Army Aeromedical Research Laboratory (USAARL) and the U.S. Army Aviation Center, covered "Operational Helicopter Aviation Medicine."

The AGARD/AMP meeting attracted more than 200 military and civilian scientists from 12 nations (10 NATO) to discuss various aspects of helicopter aviation medicine. It was the first panel meeting devoted entirely to the unique and special medical problems of helicopter flying.

Aircraft inventories of NATO nations have been evolving from an almost totally fixed wing fleet to a mixed fleet of fixed wing and rotary wing (helicopter) aircraft.

There is a trend to increase the number of helicopters in direct support of the ground Soldier to provide airmobility and firepower. The helicopters employed have become increasingly complex; and the operational missions have become extremely difficult and demanding for aircrews.

The operational demand for combat flexibility provided by military helicopters assure their continuing importance to NATO in high mobility land warfare. Operations at sea involving long duration station holding antisubmarine warfare, foul weather search and rescue create entirely different problems. Experience has shown that helicopter operations present work environments, special stresses and environmental demands on aircrews which are significantly different in type and/or degree from those in fixed wing operations.

Major General James C. Smith, Aviation Center commander welcomed the participants and reviewed the history of the evolving use of the helicopter. General Smith explained the mission of the Aviation Center to the group, stressing that "helicopters operate in a ground environment" rather than a strictly aerospace environment. The Fort Rucker commander also arranged for the AMP attendees to see a helicopter tactical training exercise that accented the capabilities of helicopters and the conditions those aircraft encounter while flying in the ground environment.

A selective number of AGARD participants who were unfamiliar with night vision flying were given the opportunity to fly during night training exercises and both observe and use the night vision goggles. They also were presented briefings on Soviet helicopters; heliborne antitank concepts; aeromedical evacuations; and sea, carrier, antisubmarine operations during opening day sessions.

Medecin General Georges Perdriel, chairman of the AMP, also welcomed the guests and thanked those who have pioneered the way in helicopter medicine. He said they made it possible for this meeting to take place. He said that this entire AGARD meeting was being devoted to helicopter medicine because of the increased use of helicopters in the NATO countries.

Dr. Douglas Busby, deputy air surgeon, Federal Aviation Administration, told the participants, "We look to you, as pioneers in the new field of helicopter medicine, to come up with answers. We look forward to the products that this program can give to civil as well as military helicopter aviation."

In other opening remarks, AMP Chairman Medecin General Perdriel said, "The increasing importance of the helicopter in operational activities has encouraged us to study the different medical aspects of its use. This mode of propulsion will be indispensable to assure evacuation of wounded and thus permit their rapid transfer in good condition to surgical centers that are specialized." By the end of the 5-

The 10 NATO nations' members participating in the AGARD/AMP Meeting 1 to 5 May 1978: (L-R) Colonel K. Jessen, Denmark; Major N. H. Haakonson, Canada; Major General H. Grunhofer, Germany; Medecin Colonel J. Bande, Belgium; Air Commodore J. N. C. Cooke, United Kingdom; Colonel Stanley C. Knapp, United States; Medecin General G. Perdriel, France; Lt Colonel F. Monesi, Italy; Colonel C. A. Steendyk, Netherlands; and Dr. H. T. Andersen, Norway

day conference 66 papers had been presented covering:

• **Human Factors Of Helicopter Design And Operation** addressed cockpit design, instrument configuration, aircrew workload and its assessment, performance measures, combat operations under primitive or field conditions, sustained operations in support of ground combat operations and related subjects.

• **Helicopter Safety And Crashworthiness** covered crash injury analysis, designs for injury prevention, restraint systems, energy absorbing seats, helicopter escape and post-crash fire.

• **Visual And Acoustic Aspects Of Helicopter Design And Operations** included cockpit lighting, aircraft conspicuity, visual displays, night vision equipment, communication noise, aircrew hearing loss and weapons impulse noise.

• **Environmental Aspects Of Helicopter Operations** involved papers and discussions about the environmental effects and control of hot and cold climate operations, oxygen systems to support high altitude missions, the acute and chronic effect and control of helicopter vibration and cockpit toxicology.

• **Medical Aspects Of Helicopter Patient Evacuation And Rescue Operations** addressed the fact that the helicopter is an accepted mode of transportation for the sick and wounded. Papers specifically addressed helicopter inflight patient monitoring, resuscitation and support, hoist and rescue missions, special medical equipment requirements and developments and design of helicopters specifically for medical evacuation.

"Panel members have participated more fully in this meeting than in the past because we have been able to address a single topic, helicopter aviation medicine," said Lieutenant Colonel George Kush, United States AMP coordinator. "The people listened to and discussed all of the papers rather than showing an interest in just one or two."

Lt Col Kush said that AGARD's technical program committee will meet this fall to decide whether there should be a follow-up working group or perhaps a lecture series to present highlights of this meeting in other countries. He pointed out that the conference proceedings will be printed and distributed to all participants.

COL Stanley C. Knapp, USAARL commander and session organizer, noted that many of the conferees were nonmilitary and represented both the civil and military aviation elements of their countries. This also holds true for the United States.

One of the AMP goals is to stimulate interest in finding ways to standardize equipment as much as possible, according to Dr. Robert Korkegi, AGARD director. Standardization in NATO is not purely a technical problem, it is a political and economic problem. It is as much a matter of convincing people of the overall economic and political benefits, as it is the technological benefits; to opt for one particular way of doing things or one particular piece of equipment.

What about results of the papers, presented at this AGARD meeting? Colonel Knapp said, "Just the fact that the majority of the people working on these problems in the free world met together for the first time lays the foundation for better technology exchange. This can prevent costly duplication of research, encourage standardization and interoperability.

"If the proceedings of this meeting can create discussions in and between the various countries in attendance, that will eventually lead to change. Then I think we will accomplish or goal."

It was the third time in its 26-year history that AGARD/AMP has met in the United States. Panels meet twice yearly and meetings are rotated among the NATO nations.

In all, papers were presented by Italy, the Netherlands, the United Kingdom, the United States, Denmark, Germany, Canada and France.

Colonel Robert W. Bailey (Ret) (L), past commander of USAARL, and Colonel Stanley C. Knapp, USAARL commander, turn the symbolic shovel of earth that marks the beginning of the new laboratory facility

Right, MG James C. Smith arranged for AMP guests to see a tactical exercise that emphasized capabilities of helicopters (below) in the ground environment

Stresses encountered before flight

CONVERSATIONS heard on the flight line:

Conversation 1

"Boy, did we have a party. I didn't get in till two-thirty this morning."

"Are you in shape to fly?"

"No sweat. I had at least 3 hours' sleep."

"Did you get breakfast?"

"I grabbed a cup of coffee and a piece of pie to get rid of my hangover."

Conversation 2

"I heard you and your wife were getting divorced."

"Yeah, I really can't figure it out. It's all I've been thinking about lately."

"Are you sure you should fly today?"

"Are you kidding? When I strap that aircraft on my seat, I forget everything else."

Conversation 3

"Have you found a place to live yet?"

"No! And my wife is really starting to complain about that motel. The kids are into everything. You wouldn't believe how much we have to pay for that place either."

"Maybe you shouldn't fly this mission today."

"Forget it. I could fly this mission with my eyes closed."

Conversation 4

"If I don't get over this cold, the weekend is going to be shot."

USAAAVS Major Peter J. Edgette

"I don't think you should fly with a cold."

"Relax! I took some of my wife's cold tablets. They work great for her."

Conversation 5

"Wait a minute. Let me have one more cigarette before we take off."

"Smoking affects your night vision. Why not forget that cigarette."

"Who says? I can see as good as anyone."

Conversation 6

"Congratulations on your new job."

"Job! Ha! My new boss is really pushing me to get the supply shop cleaned up. Let's hurry with this preflight so I can get back to the salt mine."

Conversations like these take place every day on flight lines throughout the world. It's almost impossible to get through this life without being placed in stressful situations, but we continue to put ourselves through *unnecessary* stress. First off, what is stress? Stress is nothing more than the body's reaction to a harmful force. This force may be physical or psychological.

Self-imposed stress

This is a stress that the aviator imposes upon himself/herself usually prior to the flying of a mission. Stresses act in concert and can be cumulative in effect. Self-imposed stresses are: diet, alcohol, smoking, drugs/caffeine, loss of sleep, lack of exercise, workoholism, marital problems, and financial problems. Marital and financial problems may not be self-imposed but definitely inhibit performance.

Body's reaction to stress

The results of stress are numerous. Probably the main result is fatigue. The body's reactions to stress are:

Mental—Anxiety, inattention to detail, neglect of secondary tasks, daydreaming, confusion, personality change, and fatigue.

Physiological/physical—Tendency to rush, fatigue, reduction in psychomotor coordination, increased heart rate, increased blood pressure, hypoxia, errors in timing, and aches/pains.

How about conversation 1? This individual did not get enough sleep, he had been drinking and his breakfast consisted of a cup of coffee and a piece of pie. Talk about self-imposed stress. Sleep is required to rest our brains as well as our muscles. With loss of adequate sleep, there is a loss of memory, perception and timing. Just what we need is an emergency situation. Alcohol is basically a depressant and can seriously affect judgment, reaction time and coordination. AR 40-8 restricts you from flying duties for 12 hours after the last drink is consumed and until no residual effects remain. For years "adequate diet" has been pushed. One cup of coffee and a piece of pie? This individual is just waiting for hypoglycemia to take charge. Most likely the blood sugar level will be high for about an hour and then this pilot will become dizzy and nauseated, get a headache and begin to make judgment errors. How many times have *you* heard this conversation?

Situation number 2 is not exactly a self-imposed stress, but it must be addressed. Unfortunately, this conversation is not uncommon. Should this pilot fly if all he can think about is his pending divorce? How about telling him, "If the Army wanted you to have a wife, it would have issued you one"? No, I think we can do better than that. We could advise the individual to see the flight surgeon. We could talk to his commander and recommend he be given a leave to straighten out his family situation. I am trying to say that we should do something to assist our fellow aviator. To do nothing and let him believe that once he gets in the aircraft he can forget his personal problems is unfair and unsafe.

Conversation number 3 combines stresses encountered by all aviators at one time or another. This individual, besides being concerned for his family's welfare and his financial situation, has the belief that he can forget all this and fly this mission like all the rest. Personal problems take quite a toll on an individual's emotions. Stresses are cumulative and when you combine emotions concerning your family with financial worries, it is almost imposible to function at a high level of expertise. The mistaken idea that one mission is like another could actually be the result of chronic (long term) stress. Poor judgment and irra-

"Wait a minute. Let me have one more cigarette before we take off."

tional thinking are indicative of chronic stress. Once again, as in the previous conversation, we have a responsibility to our fellow pilots. Chronic stress is the predecessor of chronic fatigue, and chronic fatigue can result in irritability, insomnia and depression. In these cases, individuals are unable to recognize their problems and outside help is usually required. This conversation probably isn't indicative of chronic fatigue but could result in it if the situation persisted long enough.

Conversation number 4 depicts probably one of the most common stresses to which aviators are subjected—the everyday cold. This conversation also brings out a much-abused stress, that of self-medication. To intentionally fly with a cold is in violation of the spirit of AR 40-8 and contrary to common sense. Misconceptions among Army aviators are partially responsible for the prevalence of this abused stress. The first misconception is the idea that only a shirker would not fly with a cold because "everyone does it." The second is the belief that low altitudes have minor physiological effects. The first problem can only be corrected by command emphasis. Commanders at all levels must realize the dangers involved in this practice and encourage, through discipline if necessary, the end of flying with colds. The second misconception, that of no noticeable physiological effect, is totally false. The pressure differential between 5,000 feet and sea level is greater than any other 5,000-foot increment. A rapid descent with a blocked eustachian tube due to a cold can produce temporary deafness, pain and possibly disorientation, all of which could lead to a fatal crash. Self-medication is not only dangerous but it is in violation of AR 40-8. Drugs prescribed for one individual should never be taken by another. Just because it works for your wife or husband is no indication that it will work for you. Also, there is no guarantee that side effects will not result. In short, let's leave the doctoring to the flight surgeon.

Conversation number 5 refers to a controversial subject not only with aviators but the entire population—the effects of smoking. Many articles have been written on this subject but few refer to the reduction of night vision. It has been proven that smoking does reduce an individual's night vision. At 6,000 feet msl, an aviator who smokes has a 25 percent reduction in night vision. This percentage increases as altitude increases. At 10,000 feet msl, there is a 40 percent reduction. Smoking is a serious self-imposed stress and not only affects night vision

"Relax! I took some of my wife's cold tablets. They work great for her."

but tolerance to hypoxia as well. Since this topic is so controversial it is up to each individual aviator to evaluate the consequences of smoking. But think about this. Do we Army aviators have the right to risk our passengers' lives at 10,000 feet msl by having a 40 percent reduction in vision?

Conversation number 6 focuses attention on stress incurred due to the job. Few aviators have only flying responsibilities. Most of us have duties in conjunction with flying, such as maintenance, supply, safety and operations, just to name a few. The problem is, how do we cope with our ground responsibility when we are actually flying? This individual appears

to be unable to separate even the time dedicated to each responsibility. "Let's hurry with this preflight so I can get back to the salt mine." The answer could rest with the style of leadership his commander believes in. If you work for an autocratic-type individual, it may be difficult for you in your mind to separate both worlds. Commanders must realize that aviators, while engaged in flying, have to give 100 percent attention to the job of flying. On the other hand, aviators also have to fulfill their ground responsibilities. This stress may be a problem of perceptions—the perception the aviator has of his commander and what he thinks his commander needs and wants accomplished, and how the commander perceives the aviator's desires. I believe we have emerged from the point in time where a ground commander would state, "You fly on your own time." But, to the problem at hand, what should this individual do? If he feels he has to rush a preflight, he shouldn't fly. Possibly he could organize his time better and definitely he should sit down with his commander and discuss both of his responsibilities.

To sum up

Aviators today are required to concentrate 100 percent on the art of flying. Stresses encountered before the actual mission only detract from this goal. Areas which can and do produce stressful forces such as family problems, financial difficulties, job relationships, inadequate diet, colds, smoking, and drinking can in most cases be controlled by the aviator. Flight in itself is a stressful situation, what with altitude, speed, illusions, disorientation and weather. No aviator, thinking rationally, should want to compound these stresses, yet every day we hear conversations similar to those listed above.

Crew safety is our responsibility. To consciously jeopardize the safety of our passengers and fellow crewmembers cannot be tolerated. Every commander and aviator should, on a day-to-day basis, strive to ensure self-imposed stresses are eliminated and job- and family-related stresses are contained.

Major Edgette is a Medical Service Corps officer, assigned to the Aeromedical Activity, Ft. Rucker, AL. He has his Masters in Hospital Administration from Baylor University and a Masters in Public Administration from the University of Northern Colorado. He is currently a Physiological Training Officer, having received his training at Brooks Air Force Base, San Antonio, TX.

From FLIGHT COMMENT

Colonel J. R. Chisholm
Director of Flight Safety
Canadian Armed Forces

FLIGHT SAFETY OFFICERS... WHO NEEDS THEM

IN THEORY there is no need for flight safety officers. Everyone knows that the Canadian Forces air branch has a big job to do just keeping all of our aircraft flying on such a wide variety of missions. Both aircrew and technicians are trained to do their jobs as effectively and as safely as possible. Leaders and supervisors are selected to ensure that this is done. Of course, people make mistakes and this sometimes leads to accidents or incidents. In any efficient organization, however, the causes of these occurrences are determined and suitable measures are put into effect to prevent future mishaps. Furthermore, hazards that can cause accidents are searched out and eliminated. What you don't need is someone like a flight safety officer interfering with your job and probably trying either to make you look bad or to interfere with a smooth running operation.

If that's the way you see flight safety, we both have a problem. You, because the record shows that we haven't eliminated all of the preventable accidents and hazardous conditions; we in flight safety, because we can't help you if you don't want help. The flight safety organization exists simply to provide specialized advice and assistance to operators and maintainers to do their jobs more effectively. If you think that mission accomplishment and a safe operation are conflicting requirements, you and your unit are living with problems that should be corrected. Perhaps your accident record shows that; if not, you've been lucky. Flight safety is nothing more than an attitude towards your work. If you believe in it, it can help you; if not, good luck. You are going to need it!

Human Factors Aspects Of The AN/PVS-5

Night Vision Goggle

Major William C. Wood
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U.S. First Armored Division
APO New York 09326

This presentation of human factors problem areas of the AN/PVS-5 night vision goggle (NVG) is intended to give commanders, aviators, safety officers and flight surgeons needed data to usefully employ these goggles in unit training programs. The value of NVGs is not questioned, but an understanding of human factors limitations is critical to their safe use. The article should help overcome problem areas which should be corrected when the new generation goggles become available in the near future.

THE ABILITY OF flightcrews to survive at night in the mid- to high intensity battlefield environment in a European conflict depends on their ability to operate safely at low level and nap-of-the-earth (NOE) altitudes. The unaided human visual system is not adequate for safe low level flight under conditions below 100 percent full moonlight. Therefore, the U.S. Army has procured the AN/PVS-5 night vision goggle for use by aviation units. This is a self-contained, binocular night vision device using amplification of existing ambient light.

The capabilities of this system have been best expressed as follows:

"The night vision goggle does not turn night into day nor does it allow a user to operate with daylight photopic efficiency. However, the night vision goggle does provide sufficient visual information to allow flight under ambient light conditions which was not possible with the unaided scotopic visual system."

The night vision goggle provides tremendously increased night vision capability for U.S. Army ground and aviation units. The crucial significance of training and fighting in the nighttime environment has in recent years been emphasized by the Son Tay prison camp raid into North Vietnam; the successful rescue at Entebbe by Israeli troops; and the night crossing of the Suez Canal by Israeli armored units.

The need to be able to conduct night operations has never been greater, yet *we must not allow our-*

1. Side view of AN/PVS-5

2. Front view of AN/PVS-5

selves to overlook human factors problems related to the AN/PVS-5 night vision goggle which might lead to aircraft accidents. Training with this system requires meticulous attention to safety problems. Careful attention must be paid in planning and implementing a night vision flying program.

Field of Vision: The AN/PVS-5 goggle now in use has a 40-degree field of vision. NVGs with a field of vision of 60 degrees were tested and found to be less suitable for use than those with the 40-degree visual field because of the loss in resolution. Careful and systematic scanning is essential to adequately observe hazards to flight. Sudden head movements with this relatively narrow field of vision should be avoided, since they possibly could induce vertigo.

Minimum Light Level Needed for Use: Studies conducted by the U.S. Army have shown the NVG system to be better than the unaided vision at levels of 5 percent and 25 percent moon illuminance. At 100 percent full moon illumination, unaided visual ability exceeds that of the NVG system. Below 20 percent full moon illuminance (with moon 30 degrees above the horizon), however, inadequate ambient lighting exists to safely conduct low level flight, even with the NVG system. Therefore, the range of ambient lighting in which flight operations can be conducted safely with the AN/PVS-5 NVG is 25 to 100 percent full moonlight. The effect of cloud layers in reducing available moonlight also must be considered.

Effect of Excessive Light Levels: Bright light sources cause the NVG to darken. With brief exposure to bright light, recovery of NVG function is rapid, and the NVG serves to protect night visual adaptation in this situation. With persistent bright light sources, the origin of the light must be removed or blocked from the field of vision to restore efficient goggle function.

Weight: The AN/PVS-5 NVG weighs 28 ounces. This amount of weight has been noted to create neck muscle strain, as evidenced by neck muscle swelling. Attention to exercises which increase neck muscle strength should be an essential part of an aviation unit physical training program.

Near Vision Requirement: The separate viewing tubes of the NVG have focusing rings which allow adjustment for near and distant vision. Refocusing for near vision is part of the procedure for using this NVG system. Research workers are interested in future systems which would allow a bifocal segment of the viewing screen, but this capability is not now available and manual refocusing is required for near vision. The need to refocus for near and distant vision adds to pilot workload and increases fatigue. While one pilot checks instruments and cockpit visual tasks, the second pilot must retain both view-

The future of night vision devices is exciting and promises to increase the capabilities of all components, including aviation, of the U.S. Army to carry out their missions 24 hours a day

ing tubes on distant focus while maintaining visual scan and flying the aircraft.

Equipment Malfunction: Sudden battery failure can occur with the battery used in the NVG. Provision for actions to be taken in the event of sudden battery failure must be made during training. Any equipment malfunction or problem with the AN/PVS-5 NVG must be reported using equipment improvement recommendation (EIR) (DA Form 2407) and other appropriate reporting channels. Unit flight surgeons should be involved closely with a NVG training program and EIR and equipment malfunction reports should be reviewed by them, with appropriate reporting through aeromedical channels.

Visual Acuity: Under the best of circumstances, visual acuity with the current NVG system is never better than 20/50. Personnel wearing the AN/PVS-5 NVG cannot identify wire hazards, one of the leading safety hazards to low level and NOE helicopter flight in Europe. Daylight reconnaissance of night training areas and marking of all hazards to low level flight is mandatory. Careful briefing of the flightcrew is necessary to emphasize that the NVG does not distinguish wires. Overconfidence has no place in an NVG training program. Ambient light levels strongly affect the NVG acuity, and ability to see with the NVG may vary widely during any given period while flying with this system. These points deserve careful and continuing emphasis in a night flight program employing the NVG system.

Loss of Dark Adaptation: Because the NVG itself is a light source for the eyes, the eyes are not fully dark adapted if the goggle is removed and scotopic viewing conditions are present. After removal of the NVG, up to 15 minutes may be required to attain full dark adaptation. This must be realized to avoid actions just after NVG removal which might more safely be deferred until dark adaptation has improved. Tobacco impairs night vision and smoking should be omitted for 24 hours prior to night flight.

Fatigue: Neck fatigue due to goggle weight and positioning has been mentioned previously. Some pilots report eyestrain after using the NVG. Data on these problems is scant at present and aviators using the NVG are urged to report these and other eye problems to their unit flight surgeons for communication by them through aeromedical channels. Limited experience in our units indicates that NVG flying is extremely stressful and perhaps more fatiguing than any other type of helicopter flying. In NVG training 2 hours of NVG flying should be considered a maximum time for an evening. Fatigue must be reported promptly, and pilots in this and all other types of flight activities are urged to be on guard for the signs of flying fatigue which were discussed in the article "Operational Aspects Of Stress And Fatigue" which appeared in the September 1976 issue of the *Aviation Digest.* (Copies of this article, also by Major Wood, are available by writing to Editor, *U.S. Army Aviation Digest,* P.O. Drawer P, Ft. Rucker, AL 36362.)

Depth Perception: Army research indicates that depth perception using the NVG is impaired under most circumstances, particularly at distances exceeding 500 feet. Since individual differences in pilot training, experience and ability enter into this problem, it is more than reasonable to urge increased attention to depth perception in an NVG training program. Accurate estimation of distance is a crucial component of flying. Safety must be foremost in all aviation training programs. Depth perception and estimation of distance are difficult with the NVG and adequate time and training are essential to master these components of safe NVG flying.

Training Requirements: A minimum of 25 to 40 hours of flight time is necessary to initially become proficient with the AN/PVS-5 NVG. Although a general outline of training requirements for initial orientation of pilots to the NVG is given in TC 1-28, "Rotary Wing Night Flight," the minimum periodic flight time necessary to maintain NVG proficiency does not appear to be well defined. Data to answer this question are urgently needed.

Lack of Color Vision and Map Reading: Perception of color is not possible using the AN/PVS-5 NVG. Conventional maps are difficult to use with the NVG. Studies have been undertaken to develop special maps for use with the NVG system. When conventional maps are read using low intensity cockpit light, extreme care must be taken to avoid interference with NVG function of the individual flying the aircraft at that time. Aviators should avoid looking directly at rotating aircraft beacons due to the vertigo-inducing visual effects produced with the NVG.

Assessment of Personnel Compatibility With the NVG: The AN/PVS-5 NVG does not incorporate a

correction for astigmatism. This system can correct to some degree for nonastigmatic refractive error. Prior to beginning an NVG training program it is absolutely essential that flight personnel undergo a thorough eye examination by their unit flight surgeon, who may in turn refer the individual to either an ophthalmologist or optometrist for further evaluation. This exam should consist at a minimum of visual field testing; testing for phorias and tropias, to include a red lens test; check of NPS and accommodative power; refractive error; visual acuity evaluation depth perception and a careful examination of the internal parts of the eye; and careful questioning regarding previous night vision history.

Detection of any significant abnormalities requires further evaluation prior to consideration for an NVG training program. It is highly recommended that consultants in ophthalmology and optometry become familiar with the NVG devices, ideally by actual use of the device, in order to improve their understanding and capability to assist the unit flight surgeon in resolution of these problems. Much remains to be learned about the human-machine interaction regarding the NVG. Involvement of the unit flight surgeon in the NVG training program is absolutely essential for aviation safety.

The future of night vision devices is exciting and promises to increase the capabilities of all components, including aviation, of the U.S. Army to carry out their missions 24 hours a day. Particularly suitable areas for NVG employment are search and rescue, medevac, and logistic night aviation missions. Consideration should be given to the designation of particular units for NVG training in order that they may devote a higher proportion of their training to NVG use and thus gain and maintain proficiency in their employment. While considering NVG programs, it is most appropriate that we remember the following statement by Colonel Stanley Knapp, commander of the U.S. Army Aeromedical Research Laboratory:

> "*. . .I know when we find a way of enhancing man's normal senses we sell it immediately to the operational community. This immediately brings to the line officer new tactics, new doctrines, new strategies. Then the medical department is asked to make the man work better as a human being in this environment and you just can't do anything to improve the physiology of man. All you can do is to support him.*"

Commanders, aviation medical officers, and all those pilots involved in teaching others how to safely use the NVG system must work aggressively to ensure safe and effective NVG programs. Flight surgeons and instructors in NVG use must indeed continually review and then review again the human factors aspects of the goggles in order to protect and support the individual using them in the nighttime environment.

Aviation personnel who engage in NVG training programs must be selected carefully, thoroughly trained, fully briefed in human factors aspects of the NVG system, and must be meticulously monitored from human factors aspects to ensure safe and continuing effective NVG use. With prior consideration given to human factors and safety, the use of NVG can vastly increase the combat effectiveness of U.S. Army aviation.

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3. Wiley, Roger W. and Holly, Frank F., "Vision With The AN/PVS-5 Night Vision Goggle." *Visual Aids And Eye Protection For The Aviator,* AGARD Publication CP-191 (ISBN 92-835-0177-2), Copenhagen, 5 through 9 April 1976.
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5. "Rotary Wing Night Flight," TC 1-28, Headquarters, Department of the Army, February 1976.

GLOSSARY

NPC	near point accommodation (measurement of minimum distance between the eyes and written material where the written material can be read without blurring)
phorias	excellent point discrimination
photopic	day vision using the cone cells of the eye which results in good visual acuity and the ability to see color
scotopic	night vision using the rods of the eye—poor visual acuity and the inability to see color
tropias	cross eyedness

Directorate of Evaluation/Standardization

REPORT TO THE FIELD

DES welcomes your inquiries and requests to focus attention on an area of major importance. Write to us at: Commander, U.S. Army Aviation Center, ATTN: ATZQ-ES, Ft. Rucker, AL 36362; or call us at AUTOVON 558-3617 or commercial 205—255-3617. After duty hours call AUTOVON 558-6487 or commercial 205—255-6487 and leave a message

Recurring Deficiencies Cited

OUR WORLDWIDE aviation standardization evaluations reveal recurring deficiencies which impact unfavorably on aviation unit readiness, training and flight standardization. Significant items are listed below in an effort to focus commanders' emphasis and attention.

Individual Aviator Proficiency:

• Weak in knowledge of and ability to properly execute aircraft emergency procedures. More classroom and flight time must be devoted to this training or accident rates could continue to escalate. The synthetic flight training system (SFTS) 2B24 is an excellent emergency procedures training device to enhance aviator proficiency. It has 104 programed malfunctions.

• Weak in knowledge of aerodynamics, aircraft systems, aircraft operating limitations, performance charts.

Instructor Pilot Proficiency: Weak in methods of instruction, knowledge of aerodynamics and computation of weight and balance data.

Unit Tactical Instrument Program: Inadequate or has not been implemented. Tactical instrument preflight planning and approaches are not being evaluated as part of the annual instrument evaluation.

Maintenance: There is a definite need to improve daily maintenance through more thorough and detailed preflight and postflight inspections performed by crewmembers.

Use of SFTS Devices: Structured courses of instruction are not being employed during instrument and emergency procedures training in the SFTS.

Aviation Safety:

• Recognize and apply task error analysis and corrective training from aircraft accidents experienced throughout the Army. FLIGHTFAX is an excellent document that provides keys to evaluate aviation training/safety trends.

• A need for command emphasis in requiring aircrews to observe strict flying discipline, with respect to unit standing operating procedures (SOPs) on all training and support missions. Violations of unit SOPs have surfaced as factors in numerous aircraft accidents.

Aircrew Training Manual Application:

• Tasks selected by commanders for individual aviator performance are minimal and inadequate to support Army Training and Evaluation Program (ARTEP) requirements. The aircrew training manual (ATM) and ARTEP are complementary and should be considered when developing aircrew training requirements.

• Tasks selected for aviators in the continuation phase of training are not repeated frequently enough to ensure proficiency is maintained.

The U.S. Army Aviation Center (USAAVNC) stands ready to help, where possible, commanders improve the effectiveness of their aviation resources. USAAVNC resident aviation training continually is being updated and expanded to meet field requirements for better qualified products. The goal is to produce graduates that will enhance mission accomplishments of units to which they are assigned. Accordingly, USAAVNC requests advice if increased training emphasis in any areas deemed appropriate could curtail observed deficiencies. The point of contact for USAAVNC is the Directorate of Evaluation and Standardization, ATZQ-ES (AV 558-3617/2501).

THIS MONTH Major General James C. Smith again responds to comments from *Digest* readers in the field. The mailer "You Wanna Hear From Me?" appeared in the November 1977 *Digest.* It invited individuals to write to General Smith with questions or comments regarding training at the Aviation Center.

Dear General Smith:

The Reserve components have been charged with a significant responsibility as an element of our national defense. What has been done by the Aviation Center to support the preparation of Army aviation in the Reserve components to meet this challenge? It is my understanding that Ft. Rucker provides logistical support for annual training (AT) and little more. Please clarify.

Fort Rucker has provided support to the Reserve components in many areas besides annual training logistics support. For example, numerous mobile training teams (MTT) have been provided in air traffic control, M22 armament systems, aviator maintenance CH-47 ground school, standardization instructor pilot and instructor pilot support.

Mechanic training has been provided at Fort Rucker during annual training periods. Additionally, aviation units have been provided training at Fort Rucker to enhance their overall readiness.

The Aviation Center is vitally interested in the important role that Reserve components play in the defense of our Nation and stands ready to assist in any way possible. Feedback from units in the field is an invaluable tool in determining the effectiveness of our training programs.

Thank you for responding,
General Smith

Dear General Smith:

I think you can improve your training by allowing military personnel to perform all the required maintenance on all your aircraft. Overall, I think your aircraft are in pretty bad shape because they are not properly maintained. Your contract maintenance people have a "waiver" on just about everything in the —20. If you are going to allow contract maintenance to continue, the least you can do is set up an *all* military quality control section in every hangar.

In response to your comments regarding the maintenance of aircraft at Fort Rucker I want to pass to you the following background and clarification.

Your opinion that the aircraft are in pretty bad shape because they are not maintained properly must stem from some personal experience you have encountered. I recognize that in a fleet of more than 450 aircraft for the training mission and tenant activities there will be occasional maintenance deficiencies. However, I am confident that the Army is buying in this contract the most reasonable standards of aircraft maintenance as it is feasible within prudent terms of safety, environment and economics.

Aircraft maintenance was contracted prior to the transfer of the aviation training mission to Fort Rucker in 1954 and it has continued on contract since. We have studied the feasibility of accomplishing all aircraft maintenance by contract and Government forces under the Department of the Army guidance in the Commercial Industrial Type Functions Program. It was determined most advantageous from a cost standpoint to continue the contract operations. With the continuing manpower reductions in military and civilian forces being imposed upon the Department of the Army it would be difficult to obtain about 1,350 spaces to perform our aircraft maintenance.

The aircraft maintenance contract was developed and awarded by some of the most competent authorities in the Department of the Army, Troop Support and Readiness Command, U.S. Army Training and Doctrine Command and Fort Rucker.

I share your concern for providing the best maintenance available for our aircraft in the Army aviation training program.

Thank you for responding,
General Smith

"Reporting Final"

Late News From Army Aviation Activities

THIS IS THE introduction of a section in the *U.S. Army Aviation Digest* which is intended to provide the Army aviation community with information on a broad spectrum of current subjects and events. Many of these "news" items normally do not receive widespread dissemination but are vital to a thorough understanding of the dynamic factors influencing Army aviation. Comments from you, the reader, are encouraged so that we can make this section serve its purpose.

BG CHARLES E. CANEDY
Deputy Director of Requirements and Army Aviation Officer
ODCSOPS

FROM THE PENTAGON, JULY 1978

Specialty 15 Study. A DA Aviation Special Task Force (STF) formed in December 1977 to assess and review the management of aviation specialty 15, recently reported its findings. Some of the approved STF recommendations include continuation of ground duty assignments for all combat arms aviators, 1 to 2 years branch assignment for lieutenants prior to flight training, a 4-year aviation utilization tour following flight training, and an increased flight training rate in FY 81. More information on this 11-month study effort will be published in the near future. Follow-on efforts will examine enlisted aviation career management. **(ODCSOPS/ODCSPER)**

★ ★

AR 95-1. The draft revision of AR 95-1, "General Provisions and Flight Regulations," recently received a comprehensive review by the major command aviation officers. This revision will incorporate ARs 95-1, 95-63, "U.S. Army Aviation Standardization and Instrument Program," and 95-64, "Individual Flight Record and Flight Certificate" into a single regulation and is written to complement the aircrew training manuals. The new AR 95-1 will be effective on 1 October 1978, timed to correspond with the next version of the aircrew training manuals. **(ODCSOPS)**

★ ★

NATO PANEL X. Panel X, formally designated AC/225 (Panel X), Interservice Group on Air Vehicles for Tactical Air Mobility, is, for Army aviation, one of the principal forums to enhance NATO rationalization, standardization and interoperability (RSI). Interservice representatives from Belgium, Canada, Denmark, France, Germany, Italy, the Netherlands, the United Kingdom and the United States periodically meet to exchange information on future aviation requirements, developments, and acquisitions. In November 1977, the U.S. Army briefed the panel on the advanced scout helicopter (ASH) and aircraft survivability equipment (ASE). At the most recent meeting (last May), the U.S. Army

presented a discussion of the advanced attack helicopter mission equipment package to include the HELLFIRE missile and 2.75 inch rocket systems, the 30mm chain gun, the fire control system, aircraft survivability equipment, the Integrated Helmet and Display Sight System (IHADSS) and the TADS/PNVS. During these meetings the U.S. Army has learned much about similiar programs underway in the other nations. The next meeting of Panel X will be in Brussels from 2 to 3 November. It will be followed several days later by a symposium in London designed to focus on military requirements for helicopter ice protection and ongoing anti-icing/deicing development programs. **(ODCSRDA)**

★ ★

AN/APR-39. In response to an urgent requirement to provide an interim aircrew training device for the AN/APR-39 (V) I radar warning receiver in conjunction with its fielding, a contract has been awarded for 40 Knee Board Training Devices (KBTD). Plans call for formal field evaluations of the KBTD during the September to November timeframe in USAREUR and at the U.S. Army Aviation Center at Ft. Rucker, AL. "How To" manuals and training tapes being developed at Ft. Rucker also will accompany the equipment for evaluation. **(ODCSRDA)**

★ ★

The following reports are from ODCSLOG:

Aviation Logistics Office. The Aviation Logistics Office, Deputy Chief of Staff for Logistics (DCSLOG) is the management agency for the Army's aviation logistics program for aircraft systems during the complete life cycle process—in layman's terms, from the cradle to the grave. As a single coordinating and management agency within ODCSLOG, this office is responsible for initiating and implementing logistic concepts, policies, practices, and techniques unique to Army aviation. Heading the Aviation Logistics Office is Mr. Joseph P. Cribbins, who also is Special Assistant to the DCSLOG for Aviation Logistics. He serves as the principal advisor to the DCSLOG for all aviation logistics and related matters and is the Army Staff focal point and principal spokesman on aviation logistics. Assisting Mr. Cribbins in accomplishing this most challenging mission are LTC Bob Filer (supply and maintenance), LTC Dick Thompson (research and development), MAJ Tom Walker (operations and personnel) and Mrs. Carolyn Chapman (executive assistant). Questions concerning the role and functions of the Aviation Logistics Office on any aspect of aviation logistics should be directed to the above personnel at the following numbers: Commercial (202) 697-0487 or AUTOVON 227-0487.

★ ★

Black Hawk. The UH-60 Black Hawk is about to be fielded. For the first 3 years we are planning to use Sikorsky and General Electric contractors for the aircraft and engine to provide wholesale supply and maintenance support. This is a new initiative which has great potential. Our concept involves short pipelines, contractor knowledge for parts needed, and time in which to develop in-house know how of what is required before we decide what we need to buy and what we need to overhaul at wholesale level. Green suiters are completely responsible for operations and support below depot level. We feel comfortable that any change in distribution or deployment of the Black Hawk during this period of contractor support can be handled as well by the contractor as in-house. For once we are looking for the guy who made it to provide us with early-on support. Who should know better?

★ ★

U-8D/G Seminole. In spite of the recent Congressional action to retain senior citizens, we find that now is the time to get rid of some of the old aircraft, specifically U-8D and U-8G mission support fixed wing. These old birds have been around for 20 years and even exercising all the geriatrics we know, we are no longer about to support them for the long haul. Plan is to phase out all U-8D and U-8G aircraft by end FY 79. There will be some shortfall in filling requirements—most have been made up by redistribution of other mission support aircraft.

★ ★

Modification Programs. We now have major modification programs underway or planned for the AH-1 Cobra to S, OH-58A Kiowa to C and CH-47A/B/C Chinook to D. These modification programs vary from a relatively minor change in OH-58A to C, to a $1.6 billion program for the CH-47. Our major thrust here is to get two for one—get an overhaul job while modifying the aircraft. OH-58 and AH-1 mods are now underway. For the CH-47, we will input On Condition Maintenance candidates, regardless of series. As a result, we forecast that for about 12 years we will not have to overhaul any CH-47 aircraft, since overhaul will be accomplished during modification.

PEARL'S

Personal Equipment & Rescue/Survival Lowdown

If you have a question about personal equipment or rescue/survival gear, write Pearl, DARCOM, ATTN: DRCPO-ALSE, POB 209, St. Louis, MO 63166

Cool — Clear — Water (Maybe)?

How many times have you looked into a beautiful stream of clear water and had the urge to lie down and quench your thirst? Well, this is just fine except put the water into your canteen first. Then according to TM 55-8465-215-10 you should add two water purification tablets. This will not improve the taste of the water, but it could save your life if the water happened to be contaminated. There are very few places in the world today that you find pure or safe water ready to drink from a lake or stream. So no matter how good the water looks, *always* add at least two water purification tablets.

If you should find yourself in an area where the water doesn't look quite so cool and clear you should add three water purification tablets. If the water looks so terrible that you would never consider drinking it, add four water purification tablets and drink it anyway. The only thing that I can assure you is, that the more water purification tablets that you add, the worse the water will taste—but it will be safe to drink. So hold your nose, close your eyes and drink up—after all it's better than dying of thirst. You may go a few days without food, but water is one necessity that you *absolutely* cannot live without.

Suppose you are in an arid or desert area. Many of these regions contain natural arsenic deposits. These deposits contaminate some of the water holes you may find. It will not do you much good to add water purification tablets to arsenic contaminated water. So look for these signs of life: Does the water hole have fresh animal tracks to and from it? If it does, it is probably safe to drink. Also, does the water have mosquito larva, or other signs of aquatic life or bugs in it? If so, add your water purification tablets and drink it. If mosquito larva or bugs can live in water, it will not kill you.

So the next time you look for some cool—clear—water (maybe) it is safe to drink, but add two water purification tablets anyway.

A Tip For You

This tip will not buy you a cup of coffee, but it may help save your life. Many of you have orange reflectorized tape on your SPH-4 flight helmet. This is great for daylight use, but a smaller strip of white reflectorized tape placed in the center of the orange tape will help you to be seen in the darkness.

Space Blanket

This is one of the fringe benefits of the U.S. Space Program. A silver material was developed which is now known as the Day-Glow Space Blanket. This material is very thin and lightweight. It is highly reflective and can be folded and placed into your hip pocket. It can be used as a panel marker, to mark your position, or wrapped around you to retain your body heat. There is one caution in cold climates. *Do not* place this blanket next to your body. It will cause you to sweat and possibly freeze.

Mark It Well

The aircraft you are flying has just decided to make an unpredictable landing. This particular landing spot that your aircraft has selected is cluttered with trees and miles from conventional landing areas that you usually use. After assessing the damage to yourself and your aircraft, you are convinced that your aircraft will never fly again. It's not your aircraft that you should be concerned about now, *it's you.*

To check out another aircraft you must first be rescued, and since your aircraft was not equipped with an electronic locator transmitter (ELT) finding you may be more difficult. However, your unit will determine soon that you are overdue, and will have someone out looking for you.

The intial search effort will be concentrated in an area where you were *supposed* to be. So your chance of a speedy recovery is good if you remain with, or near your aircraft. Remaining near your aircraft is your best bet in most crash situations. However, you should salvage anything from your aircraft that you can use as a signal to the search and rescue (SAR) team.

You have your AN/PRC-90 survival radio, signal mirror, etc., but you should not stop here. On fixed wing aircraft you can cut small pieces of rubber from the tires, (but let the air out first) and have the rubber pieces ready to burn. On rotary wing aircraft you can use your paper charts or any other materiel which will burn. If tree leaves or other foliage is

available, have them ready to throw on top of your signal fire. The smoke created will help mark your position to the SAR team.

You have now been waiting near your aircraft for a long period of time. You make a decision that you are not going to be rescued, so you decide to begin walking. If possible, leave a written message on or near your aircraft that you have decided to walk and which direction you have taken. Salvage and carry all items from the aircraft that you think you may be able to use and carry safely.

However, if you leave your aircraft, it is *absolutely* essential that you mark your trail. You may get only so far from your aircraft and become immobile, your trail may lead to nowhere. The idea is to mark your trail, so you can return to your aircraft if you decide to, or that your would-be rescuers can find you.

To mark your trail you may use small strips torn from your orange panel marker. Place these strips where they can be seen easily and followed. Use your survival knife to blaze trees (remove bark) as you walk along. Break small saplings (trees) or arrange small stones as markers giving your direction. A soft limestone rock can be used to scribe signals or leave messages on larger rocks. The thing to remember, if you leave your aircraft, by whatever method or whatever trail—mark it well, but if at all possible, stay with the aircraft.

ON ANY CONCEIVABLE future battlefield involving a conflict between the U.S./NATO forces and Soviet/Warsaw Pact forces the main battles will be a contest of systems versus countersystems.

The most popular game on the battlefield for NATO forces will be to kill tanks. The value of a weapons system in the central duel that takes place in the main battle area will be measured by the total value of enemy weapons systems that it can destroy or render ineffective.

Because of the force ratio advantages the WP will have, U.S./NATO forces must rely on, and achieve, increased weapons systems effectiveness, survivability, mobility and tactical use of weapons systems superior to those of the enemy's. To put it another way, our hope is "realistic audacity" in the use of our troops and weapons systems to their fullest potential. I have written this article with two objectives in mind:

- To present an outline for the offensive uses of present and future attack helicopters as fully integrated members of the combined arms team.
- To provoke thought that will lead to a major field test of attack helicopters in offensive roles—a test which I believe to be long overdue.

I do not intend to consider the full interface with other maneuver forces and fire support systems that will be found within our combined arms team. Readers are assured that I believe that the effectiveness of the offensive attack helicopter concepts contained herein can be achieved only through the use of combined arms employment. The attack helicopter, like other battlefield systems, must be mutually supporting and supported in order to optimize its battlefield effectiveness.

Notwithstanding the previous statement, independent attack helicopter operations are at times both possible and desirable on future battlefields and should be planned for and used when and where needed. Many or most of the offensive attack helicopter concepts that will follow have yet to be tested, and are written for the reader who is able to see, feel and visualize the dynamic realities of warfare.

Threat Tactical Doctrine. The threat force will be armor-rich; have proven ADA, FA and TACAIR weapons support in large numbers; and operate within the combined arms team concept. Threat support elements, to include EW, NBC, engineer, logistical and transport, readily will be available.

Given the opportunity, the threat force will attempt to make breakthroughs by use of overwhelming force, followed by deep connecting penetrations to the rear of our main battle area. The enemy's offensive drive will be supported with both fixed wing and rotary wing aircraft and may attempt the placement of large airmobile forces to our rear. In addition, the enemy can be expected to be well-trained and equally well-conditioned for the hardships of battle.

Threat Doctrinal and Technological Trends. Second generation ADA weapons systems improvements can be expected in the areas of both AAA cannons and missiles. Increased numbers of enemy helicopters, to include attack helicopters, can be anticipated.

Glossary

Offensive Attack H

ANNUAL AWARD
Writing Winners
CONTEST

Soviet airmobility has come of age as a full member of their combined arms team. Frontal aviation Army units of regimental size have the assets to lift complete motorized rifle battalions. Colonel V. Sankin, a prominent Russian military writer, notes that maneuver by air offers the field commander a unique time advantage over distance and terrain, and contributes to the continuity of the attack and attainment of tactical momentum.

Other data available indicates significant increases in Soviet production of airmobile assets. Considering the U.S. funding limitations which are impacting throughout all the services, it becomes increasingly necessary for the Army to strive for qualitative superiority in those airmobile systems which might lose their quantitative superiority.

Environment. The battlefield threat environment in which the attack helicopter will perform its missions has been written about, both in classified and unclassifed form, almost to the point of exhaustion, as readers of this publication know well. There are, however, two points I would like to make under the heading of "environment." *The first* has to do with a growing misconception of the threat's attack helicopter kill capability. *The second* is a lack of understanding of the full capabilities of our attack helicopters and, more importantly, the knowledge of the terrain and enemy that will be available to the commanders who employ them.

Those who disagree with the use of attack helicopters in a joint offensive role have basically the same arguments. Attack helicopters can't hold ground, make magnificent targets, and must be massed together to deliver any amount of useful firepower. Their assumptions are apparently based on their belief that the enemy threat forces are not susceptible to surprise; that they always hit their mark (the attack helicopter); and that their ADA always is located in the right place. *The dynamic realities of warfare will not support these contentions.*

Military history tells us that during battle and periods of rapid movement and countermovements, commanders who are least confused may well carry the day. In the final analysis, the threat force is subject to the same problems in countering our combined arms team forces that we are in countering theirs. The battlefield dynamics will supply more than ample opportunity to use the attack helicopter in any role for which we have trained its crews.

Field commanders during the next war will have (if they are trained to use it) more accurate and timely intelligence on the threat forces than ever before. This intelligence can provide a basis for tactical decisions for the use of attack helicopter units in offensive roles.

Imagery/electromagnetic/human intelligence all combine to give commanders a current picture of where the threat is on the battlefield. It allows them to plan and tailor their combined arms team effort to destroy or disrupt the threat before it moves against them.

Within the Army's combined arms team, the attack helicopter force is the most mobile, powerful (missiles,

licopter Operations

Major Frank T. Peterlin
Directorate of Combat Developments
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Fort Rucker, AL

Illustration by Lillie Williams

rockets and cannons) force available to help set the tempo of battle. In the offensive, attack helicopter hit-and-run attacks delivered in rapid succession will help to ensure the gaining of momentum by increasing pressure on enemy rear elements and heightening the fear factor among the troops.

The attack helicopter unit in the offensive can pick its spot to attack and the time to break off the attack. It can use terrain and weather to its advantage and, with the arrival of TADS and PNVS with the AH-64, it will operate around-the-clock in darkness and most weather conditions. With its agility it can pick terrain that is impassible to ground threat systems and thereby outmaneuver most of these threat systems, to include threat TACAIR, a big plus when operating in the enemy's rear areas. The attack helicopter force allows the ground commander the capability to followup at once on an initial success by attacking deeply, with great speed and firepower, into the enemy's rear area.

The environmental effects of weather in Europe, and its relationship to attack helicopter employment is again another subject which has been well studied. From these studies, it has been concluded that an attack helicopter force, due to weather considerations, may be the only force that can meet a threat armored attack in a timely manner. I will state that for these same reasons, at times attack helicopters will be the only force capable of keeping the momentum of the attack moving and allowing no let up on a retreating threat force.

Limitations During Offensive Commitment. The key limitations of attack helicopter units in offensive operations can be determined only by field evaluations, which have not been done. However, based upon the wealth of tests/evaluations that have been done on using the attack helicopter in a defensive role, the following limitations appear likely:

- Current AH-1S Cobra rearm/refuel needs will limit attacks to around 50 km forward of the FEBA. The AH-64 will go deeper and do it around-the-clock.
- Attack helicopters will be more effective operating forward of the FEBA while in range of friendly artillery or while operating with TACAIR suppressive fire support.
- The current AH-1S does not now have a suitable cannon (it will soon have 20 mm and 30 mm later) to give off-axis suppressive fires while it attacks with its missiles. The AH-64 will have both a better missile (HELLFIRE) and a 30 mm cannon.
- The current AH-1S does not have a night attack capability without artificial illumination. The AH-64 will have FLIR and a PNVS to navigate with and will not be as constrained as the AH-1S by ambient light needs or weather conditions.
- Current radios are lacking in providing the reliability needed during NOE flight forward of or behind the main battle area.
- The current AH-1S lacks many of the aircraft hardening and ASE features that will be found on the forthcoming AH-64.

GLOSSARY

AAA	antiaircraft artillery
ADA	air defense artillery
ASE	aircraft survivability equipment
ASH	advanced scout helicopter
EW	electronic warfare
FA	Field Artillery
FARRP	forward area rearming/refueling point
FEBA	forward edge of the battle area
FLIR	forward looking infrared
HELLFIRE	Helicopter Launched Fire and Forget
JAWS	Joint Attack Weapons System
km	kilometer
mm	millimeter
NATO	North Atlantic Treaty Organization
NBC	nuclear, biological, chemical
NOE	nap-of-the-earth
PNVS	Pilot's Night Vision System
TACAIR	tactical air
TADS	Target Acquisition Designation System
WP	Warsaw Pact

Offensive Attack Helicopter Operational Concepts. It has been stated that "the most decisive offensive is one which strikes with overwhelming force into the enemy's rear, and destroys, captures or renders ineffective the enemy's service support, combat support, and command and control." Traditionally, enemy combat support units, engineers, signal, artillery, and enemy command and control facilities often are less well protected and usually less capable of self-defense than maneuver units.

Weakest overall will be the enemy combat service support elements—supply, maintenance, transportation and administration. All of these enemy elements are, as the dynamics of battle take place, subject to effective attacks from attack helicopter forces varying in size from platoon to battalion size units. Specifically, some concepts for offensive employment of the current attack helicopter units (AH-1S), and, with much greater effect, AH-64 units once they are fielded, are covered below.

Leading the exploitation/deepening the penetration: It appears true that attack helicopter units are least effective and will suffer their highest losses if employed against well-prepared positions. Once, however, the penetration has been made, attack helicopter units—like cavalry units of past wars—are, because of their great mobility and firepower, ideally suited to exploit the success of friendly attacking forces. The attack helicopter force will be able to race ahead in the exploitation and with the use of its point target capability, cannon and rocket fires, prevent or seriously disrupt the enemy's ability to conduct or organize an effective withdrawal.

The use of friendly TACAIR and artillery when available will make these attacks even more productive. In order to ensure rearm and resupply for the attack helicopter forces during the exploitation, mobile ground FARRPs will travel

Illustration by Lillie Williams

immediately behind (5,000 meters) the exploiting armored forces. Currently we would use Gamma Goat type vehicles, or 5-tons for our mobile FARRP needs. Also, the "CH-47 Chinook cow concepts" for platoon attack helicopter refuel/rearm needs could be used, i.e., internal bladders with refueling accomplished through the portholes.

As we train in this area, new equipment needs and problem-solving techniques would become apparent. As always, dependent on the situation, attack helicopter forces could lead in other airmobile forces to capture, and help hold key enemy bridges, airfields or terrain until a ground link-up operation could be completed successfully.

Attacks against second and third echelon forces: I believe that attack helicopter forces will be effective in meeting the threat breakthrough attempt in the defense. But, even more devastating results can be achieved by attacking the second echelon force in conjunction with friendly TACAIR while that enemy force is on the march.

Coming to the aid of a U.S. brigade under an attempted breakthrough attack (current doctrine) probably is more of a challenge for an attack helicopter force than attacking a second echelon threat force on the march. Second and third echelon armored forces on the march are, in fact, the most ideal force for an attack helicopter force to attack and attrite with hit, run and hit again tactics.

The attack helicopter force can choose the attack point (best terrain), use standoff fires outside of effective ADA range, pick the time of attack (taking advantage of sun, shadow, light, weather) and break off the attack at will.

The Joint Attack Weapons System (JAWS) evaluation from 11 to 23 September 1977, using the AH-1S in conjunction with A-10s, has shown positive benefits to be gained from these two assets attacking the same first echelon force at or near the FEBA. This mission is necessary to assist the elements in contact; however, we should in a later exercise with the Air Force look at ways to conduct joint attack helicopter/TACAIR attacks against second and third echelon threat forces.

Conversations I have had with offensive-minded attack helicopter unit commanders from a Mideast country support the positive benefits to be gained by an attack helicopter force going after the second and third echelon force. *The deeper you go, the better the results and survivability of the attack helicopter force,* is their rule of thumb. Attriting portions of the threat armored force before it enters the main battle area lessens our target servicing problem once the central duel takes place. This could very well make the difference between winning or losing. Today it is no secret that our TACAIR would welcome any help possible in going against the second and third echelon threat forces.

Attack helicopter force special missions in the enemy rear area: As stated the enemy's rear areas (50 km to 100 km back) offer unlimited offensive attack opportunities to attack helicopter forces. The attack of key supply bases, command and control units, ADA sites with their control radar as a prelude to a friendly Air Force attack, cannon artillery, artillery missile sites and troop rest areas can all be attacked with great shock effect by a small attack helicopter force. Attacks could take place by platoon attack helicopter elements, at the same time, at two or three widely separated (5,000 to 10,000 meters) points at night (with AH-64s having FLIR/PNVS) in the rear area of an enemy division.

In that the enemy forces will march as well as fight at night, their march elements in their rear areas make ideal attack helicopter targets. In Europe, the terrain is such that small attack helicopter elements will have ample areas to move through even so-called heavily defended areas.

Due to the attack helicopter's mobility, in the Mideast, the flanks always are turnable and present a way to the rear. Due solely to terrain and weather considerations, there will be times when attack helicopter/airmobile force special operations offer the only ground

or air combat power that can be applied to an enemy force (i.e., mountain combat, tropic combat, arctic/winter/wet weather combat).

The use of attack helicopter elements of various sizes in special operations in the enemy rear area has much to offer ground commanders that they cannot achieve with the speed, control and survivability of any other force.

How Do Attack Helicopter Forces Get To The Threat's Rear Area? The answer to this question is dependent on numerous factors. Many can be answered through field testing and computer wargaming which employs high resolution terrain analyses. Some key factors are:

- The terrain itself in our area of interest.
- The attack helicopter's flight (day/night) and navigation capabilities.
- The enemy disposition.
- The "realistic audacity" of the commander.
- The dynamics of warfare taking place.
- The training given attack helicopter forces for this type of operation.

The answers to the few "key elements" listed above could with ease double the size of this article. The bottom line, however, to the problem of getting into the enemy's rear area lies not only in commanders' abilities to analyze the terrain, weather, etc., but also their abilities to use their combined arms team as a whole.

In the exploitation, once the friendly breakthrough has taken place, the mobility of the attack helicopter and the terrain will allow for deepening the attack. In a more stationary main battle area, the combination of using helicopter-only accessible terrain and moving against an assailable flank with firepower at the most advantageous time will allow movement to the threat rear area. If warranted or needed (but I believe it would be a rare case), a corridor could be forced open in a weak area and kept open for a given amount of time.

In most cases, however, the attack helicopter force would use its own scouting elements (the ASH will be ideal when it becomes available) to locate the best way into and out of the threat rear areas. Use of friendly EW, "helicopter sound emitters," TACAIR and artillery all will contribute "to make it work," not just once, but as a way of attack helicopter life on the future battlefield. The major key that will make it possible will be—*training for it now!*

Deductions: The following deductions appear warranted based upon the known threat and our attack helicopter force capabilities:

1. The Soviet/Warsaw Pact threat forces are trained to think attack around the clock. They will continue attacking U.S./NATO forces and if allowed to concentrate at given points of the main battle areas will succeed with their breakthrough operations.

2. Current U.S./NATO forces are trained in the use of defensive attack helicopter force employment as their contribution to the NATO defense against an armor heavy first echelon threat force.

3. Second and third echelon forces must be attrited to the point that they can be serviced effectively as targets as they reach the main battle area and the central duel begins.

4. Enemy rear area units have traditionally lacked the effectiveness of a good defense.

5. The "confusions of the march" make enemy second and third echelon forces ideal targets for attack helicopter forces to attack.

6. With proper training, attack helicopter forces can conduct "special operations" in all areas of the battlefield, under most weather and all terrain conditions.

7. Offensive attack helicopter operations will be most effective when operating with other members of the combined arms team.

8. Attack helicopter forces, due to their inherent mobility and combat power, are suited ideally to lead the exploitation and deepen the penetration.

The key to the successful use of attack helicopter forces in the offensive roles contained in this article is (as with all other combined arms employment roles) *unit, team and element training.* It should have started yesterday!

Because the attack helicopter is the "new member" on the combined arms team it is too often only employed as the "commander's afterthought." While some current doctrine talks about the offensive role of attack helicopter forces, at best they are viewed in the field as a useful mobile antitank weapon that requires a great deal of protection and logistical support and is used primarily to buy time until friendly armored forces can be brought into the battle.

While this attitude is correct as far as it goes, its fallacy is that it does not go far enough. The current attack helicopter (AH-1S) and its follow-on (AH-64) cost too much in terms of affordability (reduced numbers of other systems) to be limited to the thinking that permeates our current doctrine and concepts of employment.

Attack helicopter forces can be used in realistic offensive roles throughout the battlefield. We *now* need to conduct a major field test that will exploit to its fullest the role the current AH-1S can play in offensive warfare and which considers all of the dynamics that we expect to find on a high threat battlefield. We need to extrapolate the results we obtain from current and future AH-1S evaluations to the concepts we are developing for the AH-64.

The AH-64 with HELLFIRE, 30 mm cannon, and improved rockets and fire control will be able to perform the type roles described in this brief article. However, if we do not start *now to think, train and develop equipment* for offensive attack helicopter operations it will be to our detriment on future battlefields!

Woman Army Aviator To Compete In Russia

Story and photos by
SP5 Charles Drake
U.S. Army Transportation Center
Fort Eustis, VA

AN ARMY HELICOPTER pilot stationed at Ft. Eustis, VA has been selected to compete in an international helicopter airshow and competition in the Soviet Union this summer.

Captain Linda McDonald Horan was selected by Whirly Girls International and Bell Helicopter Company to compete in the event set for this month in Vitebsk (Veet-beesk), Russia. She received approval from the Department of Defense to travel in the Soviet Union for the competition.

Currently a student in the Transportation Officers Advanced Course at the Army Transportation School, Captain Horan was the first female officer to complete the Aviation Maintenance Officers Course at the school 3 years ago.

Captain Linda Horan preflights an OH-58 Kiowa. Below, she snaps on helmet prior to flight

Since earning her wings in 1974, she has logged nearly 1,000 hours flying UH-1H Huey and OH-58 Kiowa helicopters for the Army, first as a medical evacuation pilot at Ft. Benning, GA, and later as a maintenance test pilot. Captain Horan is the first woman test pilot for Army helicopters, a status she earned after attending the maintenance course in 1975.

As a member of the American women's team entry, Captain Horan visited the Bell Helicopter factory in June to practice on the aircraft the team will fly during the competition.

World class women helicopter competition is relatively new. It began in 1974—first in Paris, then Britain and this summer in the Soviet Union.

Russian women have dominated the events for the past couple of years, but a concerted effort is being made in organizing this year's American team entry.

Seven nations are expected to put their best fliers into the event: Britain, Austria, West Germany, Rumania, Poland, Russia and the United States. In addition to Captain Horan, Terri Rupp and Betsy Johnson, both commercial pilots, will be part of the team. Captain Mary Jo Karr, a student in the Aviation Maintenance Officers Course here, also was selected for the team, but will not be able to participate. A fourth team member is expected to be selected soon.

During the competition, pilots will fly navigation, precision and free style events.

ATC ACTION LINE

UNITED STATES ARMY AIR TRAFFIC CONTROL ACTIVITY

FOR A CHANGE, let's reverse roles and let us ask the questions!

Do you solemnly swear:

As an aviator—

- To acknowledge promptly all air traffic control (ATC) transmissions and clearnaces?
- To be particularly vigilant in receiving and complying with assigned instrument flight rules (IFR) altitudes and/or other ATC restrictions?
- To question ATC when in doubt about a procedure or clearance?
- To advise ATC promptly when taking action contrary to the last clearance?
- To remember that the last clearance received supersedes the previous clearance?

As a controller—

- To acknowledge promptly all calls?
- To speak clearly and distinctly?
- To key the microphone before speaking?
- To use the complete aircraft identification in every transmission to that aircraft?
- To use standard procedures and phraseology at all times?
- To keep pilots advised of significant weather and surface wind changes?
- To keep facility background noise to a minimum?

A "yes" answer to these questions reflects the professionalism required of both aviators and controllers —it's all up to you.

When traffic is such that practice instrument approaches begin to compete for space in the approach/ departure sequence, can I still get practice approaches?

A few months ago, the controllers manual (Handbook 7110.65, paragraphs 435a and 435b) was revised to clarify the relative priority of aircraft making practice instrument approaches versus IFR arrivals and departures.

The objective is to optimize ATC support of both types of operations by adjusting the traffic sequence where necessary to accommodate practice approaches but not to the extent that the flow of IFR arrivals/ departures is disrupted. Practice approaches should be sequenced and separated with minimum delay to the other traffic.

The controller has the prerogative of authorizing, withdrawing authorization, or refusing a practice approach when traffic conditions warrant. However, once an aircraft has started a practice approach, authorization for that approach should not be withdrawn unless traffic or safety considerations so dictate. Once a clearance is issued and becomes effective, the controller always is responsible for providing and maintaining separation for the aircraft making the practice approach. In other words, when there is an otherwise unresolvable conflict with IFR traffic, the controller reverts back to basics—giving priority to the safe, orderly, and expeditious flow of IFR operations.

Readers are encouraged to send questions to:

Director
USAATCA Aeronautical Services Office
Cameron Station
Alexandria, VA 22314

OPMS Corner

Continued from page 23

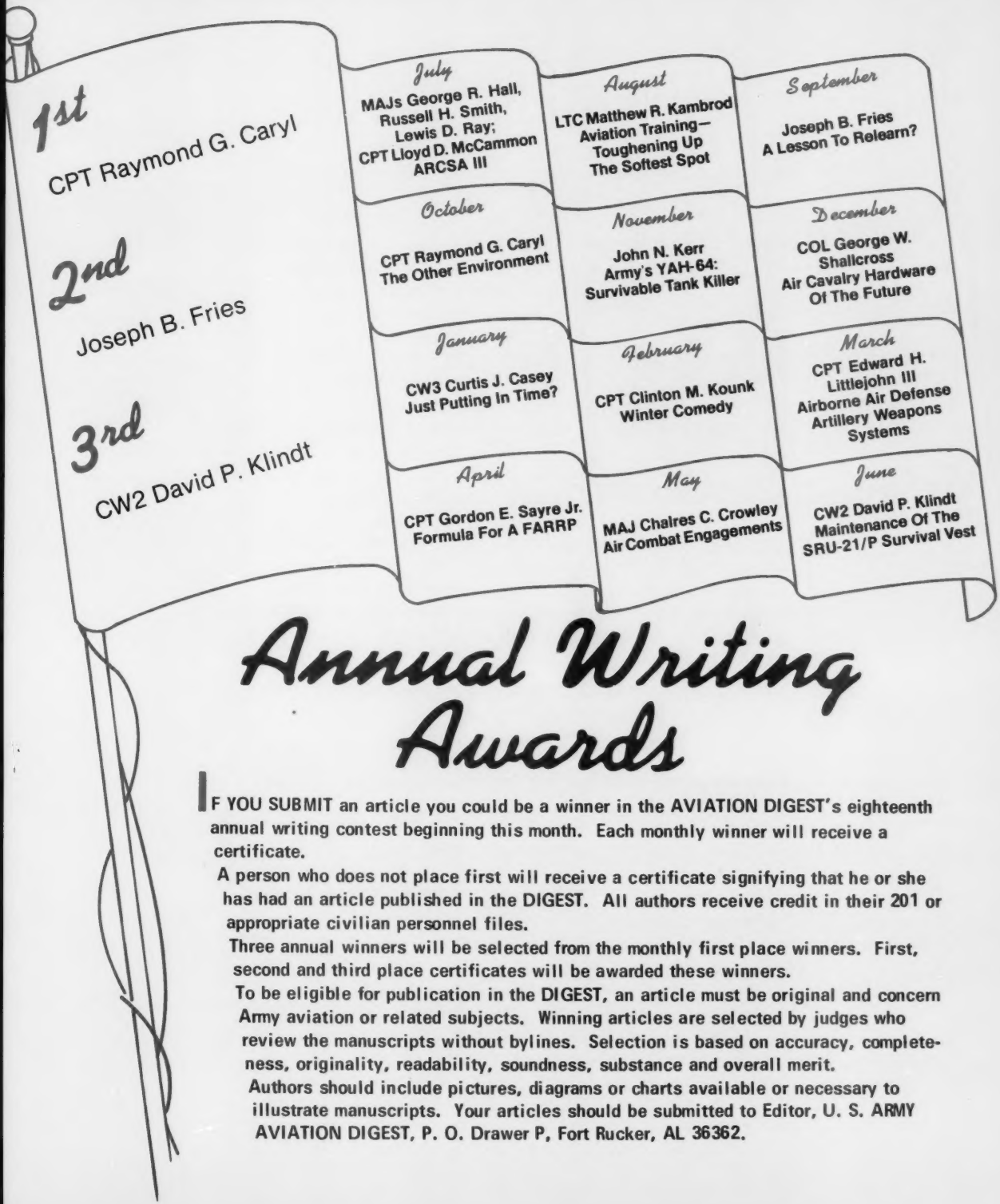
approved, will then allow the incumbents to receive operational flying credit during the performance of duty.

Special caution must be paid to any aviation position listed with an ASI of "1X." The "1X" indicates that while aviation expertise is required to perform the duties of the position, operational flying credit cannot be given.

Close attention to the proper coding of aviation positions will enhance the accuracy of the operational flying data reported to DA. It also will assist in eliminating the sudden shock that some aviators already have experienced.

Service Obligation. A recent amendment to AR 611-110, "Selection and Training of Army Aviation Officers," has announced a change to the service obligation for initial entry aviation training. Commissioned and warrant officers (warrant officer candidates are covered under AR 611-85) entering training on or after 1 October 1978 will incur a 4-year service obligation computed from the date of course completion or voluntary termination of attendance, whichever is earlier.

The increased obligation is in line with increasing costs of flight training, equipment operation and maintenance complexities. It also will bring the Army's flight school obligation more in line with that of the other services.


1st
CPT Raymond G. Caryl
2nd
Joseph B. Fries
3rd
CW2 David P. Klindt
July
MAJs George R. Hall, Russell H. Smith, Lewis D. Ray; CPT Lloyd D. McCammon ARCSA III
August
LTC Matthew R. Kambrod Aviation Training—Toughening Up The Softest Spot
September
Joseph B. Fries A Lesson To Relearn?
October
CPT Raymond G. Caryl The Other Environment
November
John N. Kerr Army's YAH-64: Survivable Tank Killer
December
COL George W. Shallcross Air Cavalry Hardware Of The Future
January
CW3 Curtis J. Casey Just Putting In Time?
February
CPT Clinton M. Kounk Winter Comedy
March
CPT Edward H. Littlejohn III Airborne Air Defense Artillery Weapons Systems
April
CPT Gordon E. Sayre Jr. Formula For A FARRP
May
MAJ Chalres C. Crowley Air Combat Engagements
June
CW2 David P. Klindt Maintenance Of The SRU-21/P Survival Vest

Annual Writing Awards

IF YOU SUBMIT an article you could be a winner in the AVIATION DIGEST's eighteenth annual writing contest beginning this month. Each monthly winner will receive a certificate.

A person who does not place first will receive a certificate signifying that he or she has had an article published in the DIGEST. All authors receive credit in their 201 or appropriate civilian personnel files.

Three annual winners will be selected from the monthly first place winners. First, second and third place certificates will be awarded these winners.

To be eligible for publication in the DIGEST, an article must be original and concern Army aviation or related subjects. Winning articles are selected by judges who review the manuscripts without bylines. Selection is based on accuracy, completeness, originality, readability, soundness, substance and overall merit.

Authors should include pictures, diagrams or charts available or necessary to illustrate manuscripts. Your articles should be submitted to Editor, U. S. ARMY AVIATION DIGEST, P. O. Drawer P, Fort Rucker, AL 36362.

Offensive Attack Helicopter Operations

Story begins on page 42

I share the author's feelings that the attack helicopter, like many of our weapons systems, possesses capabilities that have not been exploited fully. This is probably because many commanders and tacticians are not fully aware of these capabilities. On the other hand, as Major Peterlin quite appropriately notes, funding constraints mandate that we develop and prepare to employ the full potential of every weapons system at our disposal. We must aggressively employ these assets where they are most effective, be it in the covering force area, main battle area or in the enemy's rear area.

LIEUTENANT GENERAL J. R. THURMAN
Commander Combined Arms Center
Fort Leavenworth, Kansas

Illustration by
Glenda Wheeler